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# **East Europe Report**

**ECONOMIC AND INDUSTRIAL AFFAIRS**

**No. 2189**



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## IMPLEMENTATION OF ECONOMIC INCENTIVES RECOUNTED

Prague HOSPODARSKE NOVINY in Czech 28 Aug 81 pp 8-9

[Article by Milan Tesar, economic undersecretary, Vsetin Zbrojovka: "The Implementation of an Incentive System"]

[Text] In applying the Set of Measures, the management of the Vsetin Zbrojovka has been trying, first of all, to improve planning, to objectivize technical and managerial norms and standards and, particularly, to intensify internal enterprise khozraschot. Current results point to an active approach by the entire work collective to the assurance of planned objectives. This situation has been brought about through the application of the Set of Measures to internal enterprise compensation regulations and through the implementation of specific rules for material incentives for employees. This article will relate the experiences of our enterprise in this area. In the final years of the Sixth Five Year Plan, counterplanning was implemented at the enterprise with the objective of increasing the economic stake of employees of individual managerial centers in the performance achieved by management. This 3-year trial period for these regulations at the enterprise made it possible to utilize this accumulated experience during the implementation of the Set of Measures, and to formulate concretely regulations governing material incentives even at the level of managerial centers and for individuals, regulations which became operative as of 1 January of this year.

## Regulations for Centers

The key principle of these regulations is an increase in the economic stake of the employees of managerial centers in the fulfillment of qualitative indicators, i.e., in the reduction of production costs and overhead expenses, in the overfulfillment of planned targets for output, the labor-intensiveness of products, the replacement of unneeded machinery and equipment, the performance of quality work, etc. The feasibility of these directives is conditioned by the level of technical and managerial standards. For this reason, one of the tasks of an enterprise must be seeing to the thorough and immediate modifications of standards to reflect changes in technical or technological conditions, advances in the organization of production and to strengthen the entire system of flexible management.

The breakdown of khozraschot indicators establishes for managerial centers the crucial and the conditioning indicators (some in a modified form, i.e., as return on operating assets) which are to be used to calculate the basic and incentive components of wages. On the basis of these critical indicators, and taking into account the character of the managerial center, calculations are performed of adjusted value added,



return on operating assets, and labor productivity, utilizing standard hours and costs per koruna of output of the operational equipment. A reduction in the labor intensiveness of products, the production of spare parts for textile machinery, the replacement of capital assets, and the fulfillment of the planned product mix have been established as conditioning indicators.

The planned volume of wages payable for a managerial center is increased in the event of overfulfillment of a critical indicator. (For the recalculation of wages payable, however, it is permitted to use a maximum of 3 percent plan overfulfillment; if the degree of overfulfillment exceeds 3 percent, it is assumed that the plan was established improperly.) The percentage overfulfillment is then multiplied by a coefficient of 0.30 for both the basic and incentive components of wages payable. In concrete terms this means that if a given managerial center fulfills the plan by, for instance, 107 percent, the recalculation of wages payable is based only on 3 percent, which is then multiplied by the coefficient of 0.30. The center will have, then, 0.9 percent more than the original volume of wages payable. The incentive component of the wages of a managerial center is calculated in a similar fashion. The level of fulfillment of the established conditioning indicator is the basis for the recalculation. If it is not fulfilled, the volume of the basic and incentive components of wages payable is not recalculated.

An evaluation of performance so far this year points to a difference in the approaches of individual managerial centers and, therefore, differences in individual contributions as well. While at the textile machinery center the wages payable per employee have increased by Kcs 144 on the basis of the fulfillment of the established indicators, at the municipal equipment center there has been an increase of only Kcs 35. The distribution of these resources is possible, however, only after an evaluation of the fulfillment of indicators for the first 3 quarters, on the assumption that they will be overfulfilled on an annual basis as well.

From the viewpoint of the recalculation wages payable, penalties for low quality production (in-house rejects), and for the failure to fulfill key indicators, are also components of the khozraschot regulations. The level of profits, for these purposes, is reduced by the losses caused by low quality production and, in the event that a key indicator is not fulfilled, the planned volume of wages payable is then recalculated (reduced) according to the fulfillment of this indicator. The incentive component of wages disappears in the event of 85 percent fulfillment of the target for return on operating assets.

A guideline for the adoption of a counterplan by managerial centers has been established in the context of the internal enterprise khozraschot regulations. If a higher return on operating assets is adopted in an annual or a quarterly plan, in comparison with the breakdown of this indicator, and then this counterplan is fulfilled, then the incentive component of wages is increased in direct proportion. This means that for each percentage increase in return on operating assets there is a percentage increase in the incentive component of the wages payable of the managerial center.

...and for the Individual

In order to implement objectives, and to provide material incentives even for individual employees, the following regulations have been issued for our concern enterprise within the context of intensifying internal enterprise khozraschot:

- A movement to fulfill the Seventh Five Year Plan on an accelerated schedule,
- incentives for the performance of high quality labor,
- incentives for labor force reductions.

The regulations for the movement to fulfill the Seventh Five Year Plan on an accelerated schedule apply exclusively to production workers within the framework of the appropriate workshops. The key criterion will be the volume of standard-hours worked during the individual years of the Seventh Five Year Plan.

The standard-hour target for a workshop is established in the same way for each individual: The monthly working hours including planned hours of overtime, not reduced for absences, but shortened by the amount of allowable vacation time taken, is multiplied by the average planned level of fulfillment of production norms by the workshop.

The actual number of standard-hours worked by individual production workers are transferred from a computer system. A worker who fulfills a performance standard above the average for the workshop, and who does not have absences, will fulfill individual years and, thereby, the entire Five Year Plan, in a shorter period of time. Should a worker submit an improvement suggestion, the number of standard hours he has actually worked will be credited, a year after the implementation of the suggestion, with a monthly amount equalling one-twelfth of the total number of standard hours saved, as calculated by the division of industrial legal protection.

At the end of each year, and at the end of the entire Seventh Five Year Plan, the manager of the managerial center will conduct an evaluation in cooperation with the workshop committee of the Revolutionary Trade Union Movement at a meeting of the whole operation. Workers who fulfill the planned annual number of standard-hours at least a month ahead of time will receive a bonus of Kcs 1000. Workers who fulfill the entire Seventh Five Year Plan at least 5 months ahead of schedule will receive a Five Year Plan Shockworker Certificate and a bonus of Kcs 2500. Regulations covering the performance of high quality labor likewise apply only to production workers. Under their provisions, a worker is obligated to work in accordance with technical procedures, without rejects, and to adhere to additional applicable regulations related to the requirements and determinations of state testing centers which have been incorporated into technical and technological documentation. If a reject comes to his attention, the worker is obligated to stop it and to exclude it from further production.

Workers who submit products without defects for a 6-month period will obtain the right to self-inspection. The department of product inspection will examine the quality of output of these workers only on a random basis. The second time that an undeclared defect or rejected goods appear in the work of such an employee, he will lose the right to self-inspection. At the beginning of a new production process it is possible to tolerate one to three defective units, depending on the nature of the product.

Fulfillment of production norms at least a 100-percent level is the condition for recognizing the right to a bonus claimed by a worker with the right of self-inspection. Decisions regarding the acknowledgment of the right to self-inspection are made by the manager of the managerial center on the basis of recommendations of an operational commission composed of the production representative of the manager of the

managerial center, the manager of the inspection department and representatives from the CPCZ and the ROH. This commission likewise carries out a monthly evaluation of individual workers.

Workers awarded the right of self-inspection receive also the right to be awarded the Employee Performing High Quality Labor banner, and a onetime bonus of Kcs 500 plus a koruna per hour supplement for the entire subsequent period of work without defects.

Employees are evaluated at workshop production conferences at the conclusion of individual quarters.

Regulations governing incentives for labor force reductions are related to reductions in technical-managerial and administrative employees. If a collective of employees of the same profession, and in the framework of a division or a workshop, decides to reduce the number of members of this collective, on the condition that the total volume of work performed will remain at the same level, then this collective will be awarded a bonus. This bonus will be distributed among individual workers on a monthly basis by the foreman (or division manager).

The amount of the bonus has been established, given a demonstrable reduction by one employee (for instance through retirement, transfer to another workplace, etc.) at an amount equal to 50 percent of the basic wage of the eliminated employee. The bonus is paid out to the remaining workers of the collective for 12 months, as a supplement to the variable component of their wages. It is a condition of this payout that there not be an increase in overtime work, nor a reduction in the quality of the work performed. All employees of the collective in question must agree to the elimination of the position.

A reduction in the number of employees is considered to be a reduction in the work force if it is accompanied by a modification in the functional diagram of the department or in the planned number of employees, and if the reduction represents the outcome of an agreement between the manager and the employees of the collective.

The above principles have been in the process of implementation at the Vsetín Zbrojovka concern enterprise since 1 January of this year. In addition to these principles, other regulations have been in effect now since the period of the experiment (incentives for employees of pre-production divisions to achieve the first quality category, etc.), which taken together are making possible the realistic introduction of the principles of internal enterprise khozraschot at every work site of our concern enterprise.

These concrete measures assure that there are material incentives for managerial centers and, especially, for individuals. They also provide the opportunity for every employee of the enterprise to do his part in the conduct of economic activity because the results of his work, of his initiatives on the job influence the fulfillment of the planned tasks of the workshop, the managerial center, and of the entire enterprise.



**AUTOMATION, COMPUTERIZATION IN INDUSTRY VIEWED**

Prague HOSPODARSKE NOVINY in Czech 4 Sep 81 p 6

[Article by Eng Stanislav Lafek, Federal Ministry of Machine Building: "IVU - Technology + Automation + Organization; Experiences From the Construction of an Automated Factory"]

[Text] At the beginning of the 1970's, primarily in connection with the development of numerically controlled machinery, we arrived at the conclusion that a time was nearing of a huge qualitative change in the internal structure of machine tool production processes. It has been demonstrated that the pace of development of social needs does not correspond to the mere improvement of single production processes and their management.

In many instances, numerically controlled machines have been introduced haphazardly at production facilities, and placed among the other machines without even creating the requisite conditions for their installation in their immediate surroundings. Computers were assigned the task of automating individual processes which were based on managerial and informational procedures in a form which had evolved during the period of manual data processing. I want to demonstrate, using these examples, that the economic impact of highly advanced technology is very low if it is utilized in a manner which does not correspond to its capabilities, and if the proper conditions for its application are not created.

Our own Engineering Technology and Economy Research Institute worked on and coordinated, during the 5th Five Year Plan, the state program known as Integrated Production Lines in Machine Building. The objective was to create relatively autonomous basic production units with a corresponding control system. It was shown that comprehensive automation, i.e., not only from a technical standpoint but conceived of comprehensively, in terms of all its critical aspects, can contribute immense potential for an increase in production capability and the productivity of labor. On the other hand, the automation of technical procedures, of transportation, handling, and especially the automation of control inject such a large number of significant qualitative changes into the production process that deep conflicts results between the quality of these highly productive manufacturing organisms (the center), and the quality of the supervisory manufacturing organisms (for instance the factory).

Three integrated production lines (IVU), at the Kovosvit concern enterprise, the Kurim Machine Tool Factories concern enterprise, and the Gottwaldov Precision Machine Plants have fulfilled their tasks, above all in three areas:

--first, they represent an indisputable contribution to the in-house production base of these enterprises, in the sense that they have rationalized a certain part of their procedures while simultaneously making it possible for technicians and managerial employees to have access to practical experience with comprehensive automation;

--secondly, they have become an example for other enterprises; there are already many of these lines in the design phase, under construction, and in operation;

--thirdly, they have made it possible to gain extremely valuable information for further efforts in the comprehensive automation of machine tool production.

#### The Findings

Autonomous, or integrated production lines function in a factory or enterprise, despite all their good points, as a foreign body. A special procedure for materials handling must be created. In the context of equipment management or within the framework of the IVU, a preparation area for production aids must be provided, which is actually an alternative to a tool issuing room; to control the IVU one must formulate a detailed operational plan, a concept which does not have a sufficient base in the current, relatively freer, operational planning; employee compensation on an IVU requires collective material incentives for the overall work results of the unit in place of the individual piecework wages heretofore customary in the remaining parts of the factory, etc. The result is that an IVU cannot develop its capabilities fully because, in addition to the special procedures, its surroundings cannot provide all that it requires on a timely basis. It functions with larger losses of time than would be absolutely necessary.

The different procedures for an IVU and its surroundings also create social problems. IVU workers are subjected to far greater demands, especially regarding qualifications, responsibility, and the timely performance of those things that must be done so that the expensive technology can be constantly in use. A three-shift work schedule has been shown to be quite essential.

In putting together integrated production lines we used for the most part machine tools which were at our disposal at the time, which means that they had been designed for incorporation as individual units in normal operating conditions. Quite logically, then, serious difficulties arose when we tried to link them up to an automatic feed. While we had devoted considerable attention to the development of individual machine tools, we had neglected the development and production of conveying and handling equipment to take care of movement between operations and between centers. The IVUs have thus shown that the weakest links on the way to comprehensive automation are none other than conveying, handling, and storing.



We have gained a similar experience with the controlling computers. They were developed and produced at several locations, and differed in their purposes and design. They were outfitted with their basic configuration which did not correspond to the requirements for controlling an entire production process, but only individual, separate objectives.

If we summarize the findings from the construction of the IVU, we can state, basically, the following: they have been an irrefutable contribution, but at the same time they have forced an accelerated shift to the additional, problematic expansion of their utilization, i.e., to the organization of production at the factory level in such a way as to incorporate all major aspects of production activity.

### The Design

The goal of the culminating state task of the Flexible Production Systems for Machining is the creation of modular units of machines and equipment which will make possible the construction of highly automated—basically even automatic—small-scale production units. Their extent, from the viewpoint of production capacity, approximately corresponds to that of an IVU. This task is being worked on and coordinated by the Prague Machine Tools Research Institute, and at the research facilities of the Plants for Engineering Machinery concern. However, the main production of a machine building factory also includes warehouses of material with sorting rooms, heavy machining shops, hardening rooms, paint shops, metalworking shops, assembly rooms, etc. If we are to achieve a high degree of rationalization of machine tool production and fulfill tasks in the amount and quality required essentially through an increase in labor productivity, then it is inadequate to see to the mechanization only of a small part of production. Rather it is necessary to resolve the problem of highly rationalized production throughout the factory.

For this reason we, in conjunction with the Federal Ministry of Technical and Investment Development, have directed the Engineering Technology and Economy Research Institute in Prague to prepare a report on a Model Integrated Production, Control, and Social System for a Machine Building Enterprise. The formulation of this task was preceded by a study predicting the main trends of changes in the machine building process from now until about 1995-2000.

So as to avoid the danger that, at a time of broad encroachments of the scientific and technical revolution into machine building, we will be influenced to an unacceptable degree by the experiences and findings of the past, which will no longer be valid in the new conditions, we chose the technique of predicting the target condition, which is a highly automated machine building plant. Only then was the most feasible, quickest way of making a gradual transition from the present situation to the target situation sought for. The fundamental principles of this concept are:

--Automation is not an end, but a means to achieve a high social labor productivity. It is therefore necessary to introduce automated machines and equipment in those areas where it is either technically essential, economically advantageous, or necessary to eliminate physically tiring or harmful work.

--Both the extensive and intensive utilization of machinery and equipment in terms of time and function are crucial factors. The principle is applicable in that the machinery must operate and the employees must participate in servicing it while retaining their requirements. This means that individual workers will no longer be assigned to individual machinery and equipment, but that an employee collective will service the entire complement of machinery. The result will be to stimulate the performance of entire employee collectives. Only secondarily is it a bonus for individual workers determined according to individual merit.

--From a social viewpoint, nighttime work for people is not desirable, and therefore it is necessary to take steps to assure a maximum of shift work for machines and equipment, and a minimum of shift work for employees. This implies movement towards the full automation of conveyance and handling.

--The requirement for a high utilization level for machinery and equipment may be fulfilled only by very efficient control. The existing control systems, however, unfortunately correspond basically to the conditions of the manufacturing era. The basis for an objectivization of the decisionmaking process is objective and timely information. These demands may be satisfied only through the utilization of computer technology. In constructing automated control systems one must start from the fact that the comprehensive automation of material processes is intensely reflected not only in their control, but also in the economic and the social spheres. For these reasons we are choosing modernization of the highest order precisely for the control system. This system must, clearly, make possible the optimal functioning of the controlled systems, but at the same time open up space for the further increase in the automation of material processes. Furthermore, the control system must facilitate a harmonious flow of production even in a situation when individual production units in the factory or the enterprise are at different levels of automation of their material processes.

--Although the key to the control of a production process is the control of its physical aspects, internal enterprise value management also plays an important role. Its main component is an operative calculation based on highly objective norms for the consumption of materials and time. Differentiation in the levels of outfitting of individual technical professions with capital assets forces us to dispense with the surcharge technique for making calculations and to switch to time and cost rates [opportunity costs (?) ] for machinery and equipment. This new approach, then, must be fully utilized for a new organization of the internal content of internal enterprise *khozraschot* in such a way as to influence the fulfillment of production tasks precisely according to the previously determined mix, and to reduce costs.

#### Experimental Verification

It is impossible to verify the conception, the principles of which I have just outlined, in any other way than by experiment. The Hostivar Machine Tool Factory concern enterprise was chosen.

The Hostivar Machine Tool Factory has concluded a joint socialist commitment with a number of research institutes and enterprises for the construction of a model factory. This commitment was then integrated into the resolution of a

state program. This is also, then, quite a concrete example of the connection of science with production. At the Hostivar Machine Tool Factory, the main production activity encompasses 13 production centers covering the entire process from the warehousing of materials to final assembly. Four centers have been designed as a IVU with a large number of numerically controlled machines and with automated interoperational conveyance by means of partitioned conveyors. The other production units, although they do not have this same level of automation, are being rebuilt gradually according to the principle of organizing the material aspects of the production process the same way as in an IVU. Unity in the organization of the material aspects of the production process throughout all of the material aspects of the production process throughout all of the main production activity is a fundamental precondition for the harmonious mutual interaction of these units. Transportation between centers will be fully automated with the aid of electric carts which will receive orders for the conduct of transferral operations from the computer controlling the production process.

Control of the production process takes place in real time. Its basis is a two-level hierarchical system of controlling computers of Czechoslovak manufacture from the SMEP series (an SM-3/20 and an SM-4/20).

The direct control of a production process of this quality also requires the design of an entire system for the operative planning of production. In this way it fulfills the fundamental requirements, which are a substantial shortening of the average time of production, a shift from having an excess of unfinished products to having an excess production capacity, to an increase in preparedness for deliveries, etc. Although it is impossible at present to introduce more automation into assembly work, the reorganization of assembly work is leading towards two fundamental changes. The efficient control of the production process above all assures the smooth shift of all components, which eliminates "pushing" at the end of the month. The second factor is the control of assembly work. The factory control computer has information in its memory concerning all the inventories of components for assembly, including components that have been purchased. Its task is to determine beforehand whether all the components are available for a given assembly task, and only then does it give the go-ahead for the beginning of assembly. It also automatically sees to the transport of these components to the assembly site. This contributes to a substantial shortening of the average assembly time, and to the elimination of supplementary demands for the production of parts when it is subsequently discovered, during assembly, that a certain part is missing.

All of these changes are reflected very sharply in the social area. The position of the human in production changes, because a number of activities have become automated. A process then begins in which an employee leaves immediate production and moves to the area of preparation for production and to the maintenance of the production systems in trouble-free operation. Given the current situation, it is possible to observe only the start of this process at the Hostivar Machine Tool Factory. Expectations for employee qualifications are changing, new professions are arising, and the substance of a number of professions is changing. The general structure of the work force is also changing. The difference between piece work and wage work is disappearing. The current difference between workers and technicians in production is becoming blurred. A number of activities in immediate production are beginning to require employees with a secondary and even a college education.



The function of the foreman is being influenced by the introduction of computers into management. They are relieving him of the responsibility for allocating jobs, caring for the raw materials, seeing to the availability of production aids, thereby opening the way for him to devote more time to the motivation of the managed collective and to technological discipline. And there are many more of these changes. In November 1980 a design was completed for all this experimental implementation. The social contributions are interesting. Existing calculations have been based rather on a prudent evaluation of the number of contributions and, on the other hand, demands on resources have a tendency in these calculations to cluster around the upper limits. Even in this situation it is clear that value added for the existing space may be increased by two and a half times, and labor productivity by at least 70 percent. Savings of electrical energy per unit of production will amount to about 20 percent. The payback period for invested resources is less than 8 years. And one may expect that the potential of such comprehensive innovation, after its implementation and after the mastery of the new capital stock, will be increasingly higher. The first unit was finished prior to the 16th CPCZ Congress, an integrated production line for the production of rotating components up to 500 millimeters in diameter. The implementation of the next stages will progress gradually until 1985. The dispersion of the project in terms of time is necessary for two reasons. The enterprise must realize this comprehensive modernization without disrupting its production activities and, secondly, a certain equipment and techniques. We must, however, follow this path to its end. Only at its fullest extent can an implemented experiment of this type provide us with serious information, which we can then apply with far less risk at other machine building enterprises. The main objective is not, clearly, the construction of a model factory at the Hostivar Machine Tool Factory, but above all the verification of findings which we can then utilize for the rapid development of the machine building industry.

And even at the very beginning of this implementation we can draw a few conclusions:

--The further development of our machine building industry cannot follow the path only of single improvements, but must focus on the comprehensive modernization of entire large production units, where everything is resolved as a unit from all the critical perspectives.

--The comprehensive modernization of machine building operations will above all take place at existing facilities. For this reason it will always be gradual. It is, however, an essential condition that an overall targeted conception be formulated, which must assure that even though work is proceeding in progressive steps, one activity will be organically related to the next.

--Comprehensive modernization may not be designed or implemented as a single, objective matter. Variable modules must be created of both material and nonmaterial elements (machines, transporting equipment, technical assets for management, etc), from which it will be possible to create a production organism from standardized parts with a minimum of atypical equipment and processes.

--The modular elements necessary for the comprehensive modernization of the production base must necessarily be produced industrially, so as to assure a high level of technical sophistication, reliability, and a low price.

--The design organizations will have to have the capability for designing all aspects of the comprehensive modernization.

--It will be necessary to deliver the critical systems such as transportation and handling and the automated control system to the users in the form of increased deliveries, including the essential programming software, training of the employees in service and maintenance, and to assure operational service for the equipment.

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SIX-MONTH RESULTS OF 1981 ECONOMIC PLAN REPORTED

Warsaw TRYBUNA LUDU in Polish 18-19 Jul 81 p 6

[Article: "Main Statistical Office Gives Results of First Half of the Year: Decline in Production in Increase in Personnel Payroll Fund, Reduced Stocks in Commerce, Adverse Wholesaling Results in Buying up Farm Products, Difficult Conditions in Foreign Trade Turnovers"]

[Text] The Main Statistical Office states that this June the difficult economic situation of the country became worse.

In socialized industry the value of production sold was more than 48 billion zlotys, or 16.8 percent, lower than last June. As in previous months, the production decline was caused mainly by cooperative supply problems related to the shortage of imported and domestically-produced raw materials and other materials. The power-industry difficulties related to the shortage of fuels and the poor technical level of electric power plants and delays in capital repairs were a second major cause.

Power and Fuel Economy

The decline in the extraction of coal and the drop in the production of electric power continue to be particularly serious for the national economy. Extraction of hard coal this June approximated 13.2 million tons, which was 22.3 percent lower than last June. The production of electric power amounted to 8,189 million kilowatthours, 6.2 percent lower than last June.

During the first half of this year, the value of production sold was 211 billion zlotys, or 12.5 percent, lower than during a similar period last year. This fact was accompanied by a decline of 0.3 percent in employment and a rise of nearly 41 billion zlotys (24.1 percent) in the personnel wage fund.

This means ever greater shortages on the domestic market, great reductions in supplies from technical-material production, and a serious impairment of the economy's export capabilities. The use of working

time is worse. Data for 5 months of this year show that the proportion of time not worked increased by 3.6 percent in relation to the period from January to May last year.

#### Construction, Investments

During the first half of this year investment construction tasks with a total cost-estimate value of 62.6 billion zlotys were signed over for use. The value of tasks signed over (in current prices) was 2.8 percent higher than during the first half of 1980.

In socialized housing construction, during the first half of this year 82,100 dwellings with a joint utilitarian space of 4,822,900 million square meters were turned over for use. Compared to the first half of last year this represents a decline of 30.3 percent in the number of dwellings completed and a drop of 31.9 percent in the utility area. The annual targets of the National Socioeconomic Plan had an implementation rate of 31.4 percent, and they were 21.9 percent lower than the targets for 1980.

#### Market Supply

In comparison to previous months, there was a decline in the free-market prices on potatoes and grain, which helped improve the profitability of raising hogs. Despite this fact a seasonal decline was noted in the prices of piglets, and other symptoms indicating that farmers are not sufficiently interested in developing livestock production were observed. The results of the procurement of farm products of animal origin are unfavorable. The procurement of slaughter animals this June amounted to 155,700 tons and was 30.3 percent lower than last June, while the procurement of milk was down 9.9 percent, and that of eggs dropped 5 percent.

During the first half of this year, compared to the same period last year, the procurement of slaughter animals was 18.4 percent lower, milk was 15.4 percent lower, and eggs, 2.5 percent lower. The number of head of pork and lard animals included in procurement contracts for supply in July, August, and September of this year averaged 25.8 percent lower when compared with data for the same period last year, and the number of head of slaughter cattle was on average 24.3 percent lower.

Despite the serious decline in production, average employment in the socialized economy during the first half of this year was 12,021,000 million persons, which was higher by about 45,000 persons compared to the same period last year. This represents an increase of 0.4 percent. There was a substantial rise in wages in the socialized economy. During the first half of this year the personnel wage fund in the socialized economy reached 499.5 billion zlotys, increasing by 104.7 billion zlotys, or 26.5 percent, in relation to the first half of last year. This June

the personnel wage fund in the socialized economy amounted to 88 billion zlotys and was 29.5 percent higher than June of last year.

The market-money situation during the first half of this year was characterized by a worsening of the imbalance on the domestic market.

During the first half of this year the population's cash income amounted to 960.7 billion zlotys and was 171.8 billion zlotys, or 21.8 percent, greater than during the same period last year. At the same time, the population's cash expenditures amounted to 833.4 billion zlotys and increased by 90 billion zlotys, or 12.1 percent.

The value of domestically-produced and imported goods supplied to the market during the first half of this year amounted to 704.8 billion zlotys (in current retail prices) and increased by 0.5 percent in comparison to the same period last year. Deliveries of goods (in current retail prices) amounted to 114.3 billion zlotys this June and were 3.4 billion zlotys, or 2.9 percent, lower than last June. Supplies of meat and products including poultry were 9.3 percent lower this June than last June. In most voivodships deliveries of meat and meat products and poultry were inadequate to honor fully all supply cards.

Deliveries of vodka and spirits this June were 25.4 percent lower this June than last June. Severe shortages of cigarettes and matches continued. The shortage of laundry powder, shampoo, toilet soap, scouring powder, and toothpaste was keenly felt. In comparison to the condition at the end of last June, stocks in trade had declined by 20.3 percent. Stocks of foodstuffs declined by 43.8 percent.

#### Import, Export

Foreign trade turnovers during the first half of this year ran into very difficult conditions. Turnovers from payments area I showed a decline in exports of 13.5 percent compared to the same period last year, but imports were up by 6 percent. On the other hand, in turnovers with payments area II, exports showed a decline of 21.7 percent while imports dropped 21 percent.

Overall, during the first half of this year, despite the fact that Poland has not met all its export obligations, imports from the socialist countries, especially the Soviet Union, increased. On the other hand, the imports from the capitalist countries showed a significant decline during the same period.

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CHANGES IN BANKING LAWS DISCUSSED

Interview on Banking Law Amendment

Warsaw TRYBUNA LUDU in Polish 13 Jul 81 p 1

[Interview with Stanislaw Majewski, Chairman of the Polish National Bank, by Janusz Ostaszewski: "The Bank in A new Role; Between the Center and the Enterprise"]

[Text] A few days ago the Sejm passed an updated bank law. This law is sort of "in the shadows of the laws to eliminate and create new ministries. Is this reform in the banking system only formal in nature? We are talking with the Chairman of the Polish National Bank, Stanislaw Majewski.

[Answer] The fact that the draft of the reform of the bank law which has been in effect since 1975 has not brought about heated discussion shows only that this is an indisputed consequence of the economic reform and that all those people who approve of its assumptions and directions agree on it.

The reform accomplished is the first step in a comprehensive banking system reform the assumptions for which were drawn up by a group operating under the auspices of the Committee on Economic Reform. A complete banking system reform will come into being alongside the assumptions and targets of the economic reform, mainly alongside their implementation in the enterprises.

[Question] Why are changes being made already, inasmuch as they do not fit yet?

[Answer] With the inculcation of the laws on the state enterprises and self-government and the changes in the realm of the operation of the bodies of the central administration, the independence of the enterprises and the limitation of the system of managing by directive will be a foregone conclusion. Hence there will be an intermediate body between the center and the enterprise, the banking system, which will use monetary and credit

instruments. They will play a basic role in guiding economic processes and in exerting an influence on the enterprises in the directions set in the National Socioeconomic Plan (NPSG).

[Question] The bank will be using money, credit, and the interest rate. It has always been this way, and this is the essence of the bank, so just what is this new role?

[Answer] In the command and directive system the bank only supplied money to finance material decisions which in many cases were made voluntarily. It was a sort of cashier executing the payment dispositions of the various central management bodies. It is true that it did not do this mechanically. It paid attention to the effectiveness side of the decisions made. Unfortunately, this did not always produce results.

The underlying cause of the current profound imbalance was investment voluntarism, expressed in the overall investment sizes, which exceeded the economy's capabilities and in their improper structure, which violated the ratios of development of the basic sectors and branches. It is true that this did not result in any bank's going bankrupt, but the national economy did become bankrupt. Instead of the effects anticipated from the new investments, we faced a mass of money on the market without adequate goods and services to sell in exchange for this money.

In keeping with the targets of the reform, the bank will be able to say "No," if the undertaking proposed does not promise to be minimally effective, if its realization does not help bring about balance in the economy, if it will bring about a rise in the import-intensiveness of production, and so on. But for such a banking system to work, it must have its authority assured and, unlike the past, credit must not be obligatory in nature. It is after all understandable that the bank will steer credit to those areas in which it will be best used.

In a word, what is effective for the bank will be effective for the whole economy. This is hence the classical steering of economic processes through money and credit, but here it must be emphasized that the main basis for strong money is a high level of effectiveness on the part of the entire economy.

[Question] Of what is the banks' autonomy to consist?

[Answer] It is a question of greater independence in handling money and credit. One basis for granting credit will be an agreement signed by the bank and the enterprise. This is a basic meritorical change in the functioning of the banking system.

The chairman of the Polish National Bank will be appointed by the Sejm, which means that the bank will be able to obtain comprehensive clarification



tion of various aspects of decisions within its realm. This does not mean that the bank will be entirely independent of the government, like the NIK, for example. This would be neither wise nor useful, because the government guides the whole economy using various methods. The banking system will be the main focal point of this steering through its use of cash-credit instruments. Hence the Council of Ministers will establish the directions of the banks' operations and the guidelines for carrying out socioeconomic policy.

[Question] But we have various banks, after all...

[Answer] None of the rest, the Food Economy Bank, the Commercial Bank, the General Savings Bank, will be directly steered by anyone. Their operations will be coordinated by the council of banks, which will be made up of their chairmen. It will be the council's task to insure a uniform cash-credit policy. Hence, the council will also consist of the representative of the Planning Commission (cooperation in carrying out economic policy) and the Minister of Finance (cooperation in carrying out financial policy).

[Question] Let us go back to the relationship between the bank and the enterprise. It is blurred by many conflicts. On the one hand it is not possible to produce, owing to the lack of supplies, but on the other hand it must pay workers "for their presence," and not for the effects of their labor. In this situation how can the bank assist the enterprise, since it is supposed to be independent, self-governing, and above all, self-financing?

[Answer] If we had in mind assistance in the form of supplying money to pay people just for "their presence" and not for the effects of their labor, it would not come into play. This would after all be a disservice to the enterprise, to the entire economy, and especially to the society. The bank will grant assistance in helping the enterprise out of a stage of economic ineffectiveness. An effective enterprise will be an important, valued customer of the bank.

The enterprise which is ineffective over a long period of time without conditions for self-financing will cease to be a customer of the bank, because the bank will not provide credit to run "uncertain businesses." The enterprise's independence and self-governance runs both ways.

The relationship between the bank and the enterprise will have the nature of an agreement, or contract. All forms of controls of the administrative type will be removed, along with bank interference in the internal affairs of the enterprise. Legal regulations governing sanctions, arrears, and the elimination of ineffective enterprises will specify the exceptions.

[Question] The economic reform will be introduced under conditions of a severe inflationary pressure. This requires the introduction of a decisive,

uniform money and credit policy, a policy of "hard money," in which money cannot be available for every wish. The money and its price must be covered by a concrete economic effect. It is only then that we can talk about strong money which is respected by the society. Can we expect a "better zloty" and if so, when?

[Answer] Neither a reform of the banking system or even a total economic reform can bring about health. There is the illusion that a price reform will take care of all economic and social problems, but all this is merely an indispensable condition for the whole economy to be able to enter onto the road of effectiveness and maintain it.

The more effective the economy is, the stronger money is. This is why the basic goal of this first step of the banking system reform is the very mobilization of mechanisms which will help make the zloty stronger, because here it is also a question of a reverse relationship: without good money, the economy cannot work effectively.

#### Interview on Banking Changes

Warsaw ZYCIE GOSPODARCZE in Polish 12 Jul 81 p9

[Interview with Stanislaw Majewski, Chairman of the Polish National Bank, by Andrzej Jedrzejczak: "The Bank Changes First"]

[Text] [Question] The vast sums tied up in jumbled investments are considered to be one of the main causes for the current state of our economy.

[Answer] And this is undoubtedly a correct diagnosis, especially considering the fact that economic imbalance begins with improper investment policy. This is why absolute discipline in the realm of restricting investments is an indispensable condition to getting out of the current crisis.

[Question] As to getting out of it, if we may, for a moment, let us first of all outline the role of the bank, the role of the banking system, in handling the current-day situation.

[Answer] Such small accounting...

[Question] But not in today's current meaning of this work. I consider the bank to be one of those institutions in which the citizens want to have confidence. He wants to, but it is difficult for him, because reality is as it is, and his impressions about the bank's role are shaped by the examples of other countries, where this role is entirely different, or examples from very distant times.

[Answer] If you put it that way, first of all we have to say that we are conversing at sort of a turning point.

[Question] You are thinking about the bill ratified by the Sejm, the "Law on Reforming the Banking Law Bill." This legal document lost a little in the shade of others taken up at the same time.

[Answer] Nonetheless, it already presents the first outline of the new banking system under the conditions of the reform. It is initiating a departure from the old system of guiding our economy, a system which, as everyone knows, was a system which used directives and limits. The latter element especially, limits, was decisive in terms of investment policy and the execution of investments. It is true that under the old system too investments were financed to a decisive extent through bank credit, but bank credit here was de facto a technical instrument, not an economic one.

[Question] I am not sure that this distinction will be clear enough.

[Answer] Then let us put it this way: The bank financed investments, but it did not have any influence on their being made. The final decisions about concrete investments were made in establishing the National Socioeconomic Plan. It is true that written into the plan itself were only the most important and largest undertakings, those called "investments of particular importance to the national economy," but there was also the system whereby decisions were made by the ministers, decisions which in a meritorical sense were no different from those written directly into the National Socioeconomic Plan.

#### Unnecessary Information for Officials

[Question] But I remember dozens, hundreds of complaints that the bank, the bank itself, was obstructing the development of the enterprises, that it was interfering, that it spent months in passing judgment on investment proposals.

[Answer] Yes, the bank had the right, even the obligation, to give its opinion on investment characteristics which appeared in the basic lines of the targets of outlays, their size and structure (how much was to go for construction and installation labor, how much to buy machinery, and so on). These outlines even included a calculation of effectiveness. I would not say that passing judgment on these documents was an entirely useless task. It produced certain results.

[Question] Please be more specific.

[Answer] During the past few years there was decisive improvement in how realistic outlays for various installations or undertakings were. In other words, we did not have such glaring disparities as we used to have between the amounts listed in the investment descriptions and other initial documents and the amounts which appeared in investment accounting, often in the course of carrying them out. In this realm, the usefulness

of having the bank assess the characteristics was clear. On the other hand, the bank had practically no possibility of influencing meritorical, concrete investment decisions or the overall sizes of investment outlays written into the National Socioeconomic Plan. Bank credit was only a technical instrument, not an economic one.

[Question] But I have been shown documents proving that the bank tried to influence investment policy, tried to indicate the danger of tying up gigantic sums.

[Answer] It is interesting that we drew up rather penetrating and comprehensive information at the request of the planning commission. It was to have been the major instrument in making planning decisions nationwide. Unfortunately the conclusions following from these materials were not given sufficient consideration. They did not have any great influence either on the size of total outlays or on the structure of investments. Nor did they assist in overcoming the defects in our planning system consisting of failure to give adequate consideration to the complementarity of individual investment and technological undertakings from the viewpoint of progress in science and technology.

[Question] As a matter of curiosity, in more detailed matters, such as the various branches, did bank intervention produce more substantial results?

[Answer] One could find individual instances certainly, but they would be of less importance, less significance. For example, for many years we have raised the issue of the shortage of high-grade and intermediate-quality steel, and in terms of quantity black metallurgy was consistently expanded, because it seemed to somebody there that 18 million tons of steel per year is the very index to prove the economic power of the country. As a result we have steel consumption per unit of the national economy which is greater than in the FRG.

[Question] And this has nothing to do with how rich the nation is.

[Answer] Nor with the fact that Poland for so long has held tenth place among the industrialized countries.

#### Money Is to Count

[Question] You mentioned a moment ago the fact that many of our undertakings do not complement one another enough. To a certain extent this was the result of overcompartmentalization in the ministries.

[Answer] Largely lack of skill in getting out of the compartments. In this case the inadequate role of the economic agreement between enterprises, all of this which we want to assign high priority to within the framework of the economic reform which has been begun.



[Question] To what extent will the new banking law increase the possibility for the bank to exert an influence on the method of running things, especially in the realm of a reasonable level of investment?

[Answer] We cannot get around making a couple of introductory statements here. Changes are occurring in the system of the economy's functioning, including that of the functioning of banking machinery. During the initial period there will also be a fundamental change in economic policy, a change which expresses the plan presented at the Sejm for getting out of the crisis. This plan calls for a further reduction in investment outlays and the maintenance of a reduced level of outlays for at least 3 years, but this follows from the decline in national income and changes in the assumptions concerning its distribution, and as for the systems side, the self-financing principle is to be the basic source of economic development. Finally it is money which is to count for something, and not the limit or allocations. Therefore, the role of the bank will grow.

[Question] But the uneasiness about how realistic this principle is tends to be pretty great. More and more frequently we are hearing the question of just exactly what self-financing means and just what the independence of enterprises is at all, if money cannot be used to buy raw materials, machinery, implements, and materials needed for production.

[Answer] We are going to have to be gradual in our approach to what I call this ideal model, as it is included in the basic hypotheses of the economic reform. Our difficult situation of crisis is the decisive factor here. To a certain extent we shall not be able to give up immediately all the distribution and limit indices, especially in supply. To a certain extent this will also exert an impact on investment capabilities, but generally speaking, we are entering out onto the road of strengthening the role of money and the role of bank credit as one of the forms of this money throughout our economy.

[Question] That sounds good, but I would like to ask about the scale of this credit operation. How far will the bank's authority read, and will it be possible again for there to enter those elements which in the past has kept bank credit from being more than merely a technical instrument?

[Answer] The bank will be the only one to decide. It will represent the objective interests of the whole economy. In the investment area which is of greatest interest to us, we can outline the practical procedural model as follows: The enterprise will send us its own special sort of offer: We want to modernize this department or to build a new one, and in order to accomplish this venture there are certain costs and certain considerations to be taken into account. The timetable will be thus and so. Then the bank will weigh the proposal and either decide that it is realistic and profitable, in which case it will grant the credit, or it will come to the conclusion that the affair is not profitable and refuse.



The enterprise in turn either gives up the idea or decides to engage its own funds, if it has them, and in the latter case carries out the investment entirely at its own risk. We cannot rule out this possibility, because under the auspices of the reform we are getting away from the credit requirement for both funds in circulation and investments.

[Question] I am almost afraid to say it, but I notice a new catch here. Enterprises, at least a substantial proportion of enterprises, have a great deal of money in bank accounts. The habit of expanding firms mainly through investments is general and deeply rooted. If enterprises are able to use this money with complete liberty, they can distribute the national income no worse than the previous decision-makers did.

[Answer] If we were to maintain the status quo, such a danger would obviously be a real one, but I think -- in fact I am deeply convinced of this -- that there is a close relationship between the credit policy of the bank and the policy of the Ministry of Finance in the area of let us call it taxes, or the taking of funds from state enterprises. After all, we are not going over to a system in which the enterprises' financial resources will be structured arbitrarily or spontaneously.

[Question] There will be a terrible outcry. For many the pursuit of monetary excesses will be a blow to the very principles of the reform.

[Answer] This is not the only difficult and unpleasant operation which we are going to have to conduct in the near future, but here we should not leave too broad a field for adverse ideas about the reform. Surely it will not be the case that enterprises will have taken from them too large a share of the surplus they have managed to acquire. This would miss the point of the reform. It would smother all economic mechanisms so carefully built into the system. There will be a uniform, universal tax system, the principles of which will be established by the financial system of the enterprises.

#### Fear of a Machine Which Works Too Well

[Question] At the moment, the bank must help out the budget, but not everyone is aware of this.

[Answer] Unfortunately, overall, the situation is such that owing to the size of the budget deficit we will aid the budget in part by financing losses indirectly. Given the current price level on coal, the bank is financing the losses being borne by mining. Given the current system of prices, the bank is financing the losses being incurred by the construction industry. At the moment all this is going into the burden of the credit plan and will lead to the point, practically speaking, where we are financing these losses by printing larger issuances of money. Thus, these issuances are often greater than they should be.

[Question] You touched on a subject which keeps coming up in the letters to our editors, concerning many readers' surprise over why such excessive quantities of banknotes are being printed.

[Answer] I will take advantage of the opportunity to explain. We can print less money once the economy begins to function more effectively than it is presently functioning. At the present time there is a lot of work on half cycles, but the people employed after all must receive salaries often quite independent of the results obtained. This means that money must come into the enterprises from somewhere to pay the wages, and at the moment this source is the credit plan of the Polish National Bank, which means that our printing machine is "working too well."

[Question] What share do investments have in fueling this machine?

[Answer] Far greater than is commonly supposed. Every 100 billion zlotys of frozen outlays causes an increase in the population's buying power of at least 50 billion zlotys, which is not covered by a rise in production or services. One can estimate the payroll fund contained in the frozen outlays, paid to producers of investment goods and materials and to people performing work in all phases of the investment process. One can estimate the amount which extends to 400 billion zlotys. This is a very substantial part of this inflationary bracket which we have been talking so often about lately.

[Question] Meanwhile, the slowing of investments is still not producing satisfactory results, the reduction in outlays being accompanied by the rise in costs in enterprises working on behalf of investments. There are still unused machinery and equipment coming in. There are no sound ratios between the decline in the value of construction labor and the reduction of employment. Unrealistic prices on the rest muddles the situation in this key area.

[Answer] Well, the prices of the means of production are to be changed at the beginning of next year. At the moment nothing can be done about prices, but the other phenomena which you mentioned are to a large extent the result still of the old system of limits and the ministries' policies remaining in this area. Once more we improved everything a little. In keeping with that most of the construction enterprises somehow are involved with an excessive number of building sites. On each one there are a few dozen or even a dozen and some employees working whose wages are too high in relation to the value of the work being done. This on the other hand means low social labor productivity, a decline in national income. It is difficult for these enterprises to decide on some more radical steps in the direction of adjusting the level of employment to the size of investment outlays.

[Question] It is easy to make this statement: Then the bank cannot somehow make more radical achievements in the realm of its jurisdiction either.

[Answer] This is true. That is why, especially since the beginning of this year, we have been undertaking a policy of so-called hard money. The effects of this have varied.

#### In Keeping With the Wishes of the Sejm Deputies

[Question] Let us get back to the changes which the new banking law will bring. We talked about what concerns the credit system. We passed over the more general matters.

[Answer] The banking law in the formal sense at the current stage is creating a new type of banking system. It is becoming an independent system. The Sejm will appoint the chairman of the bank, although he will not be a member of the Council of Ministers. This was done on purpose, in order to insure that the banking system has some independence from the obligations implied in membership on the Council of Ministers. Theoretically one can imagine that the chairman of the bank will be responsible for the concrete resolutions of the Council of Ministers, but it is not a question of formal or theoretical matters, although it is just such issues which frequently evoke exaggerated emotions and give rise to unnecessary illusions. At the very end we are operating within a specific sociopolitical and economic system, in which a uniform economic policy must function. The essence is in changing the principles for steering the national economy. Just as during the previous period people did not always listen to the minister of finance, so too, if the system of guiding the economy were not changed, it would be possible not to listen to the assessments and opinions of the chairman of the bank. Changing the formal system would not be able to help much, although now the Sejm will be able to call upon the chairman of the bank and ask him to present certain information, explain the situation, and so on.

[Question] These deliberations are often tied in with deputies' expressed desires for the higher chamber to have greater impact on the structuring of the issuance of money.

[Answer] That is more or less written in, although, as I have already said, the structuring of the issuance of money is not a function of bank activity, only a function of the activity of the national economy. What is important, on the other hand, is the notion whereby the Sejm along with the draft of the plan and the budget is also to receive a draft of the credit plan. The previous credit plan meritorically was part of the government resolution on the National Socioeconomic Plan, but it did not exactly get sent to the Sejm. From this point of view the Sejm's role as the element which determines money and credit policy, and therefore the policy which must be one of the essential instruments for shaping economic development, will be far greater.

[Question] It seems as though the role of the bank will be too, but I have a question about how much preparation the bank has for this role.

If it is to decide whether or not to grant credit upon which investments are to be based, then it must have at its disposal experts who are able to assess the extent to which the proposals the enterprise representatives send it are reasonable and well-grounded.

[Answer] That is true. I want to say that the question of getting the bank machinery ready, especially the economic echelon, to discharge the new responsibilities which are so important is a matter of great concern to the bank's management. I think that for the technical side of assessing investment undertakings we will have to avail ourselves of the services of experts. I think that it would be ineffective and socially unwise for us to try to create within the bank a broadly expanded technical echelon. For this reason, in assessing all the more complicated undertakings we will have to use experts. I think that with the help of the Supreme Technical Organization we will be able to use such solutions for the benefit of the matter.

[Question] Would the bank also be inclined to work together with private consulting firms? In the very near future a rather large group of experts which used to work in the ministries will have to somehow manage things differently. It is not to be excluded that some of them would like to use their qualifications and experience in organizing firms of this sort.

[Answer] Since you have already brought up the matter of experts who will have to change jobs, first of all I should like to make my own offer. The bank is interested in hiring engineers, especially engineers who also have an economic background, especially as experts in investment matters. There is no sense in creating broadly expanded technical echelons, but the central office of the bank needs a certain number of specialists. They are needed by voivodship departments and some operating departments. But I am also very much in favor of organizing consulting firms, and I do not think that the bank could be their only important customer. As directives and limits are reduced and as the administrative pyramid becomes flatter, the demand for consulting services will increase.

[Question] Thank you for the interview.

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## GROWTH TREND IN LABOR PRODUCTIVITY SEEN OVER 30-YEAR PERIOD

Bucharest REVISTA ECONOMICA in Romanian No 35, 28 Aug 81 pp 18-19

[Article by Dr Gh. Raducanu]

[Text] As we know, a country's economic development, expressed by the level of the national income, depends in the end on the of work provided in the production sphere and the level of social labor productivity. The volume of work provided in the production sphere is limited by the country's demographic possibilities in the particular period, by the increasingly greater requirements for the labor force in the nonproduction sphere and by the trend toward reducing the length of the working day and week imposed by the development of the production forces. In exchange, the level of social labor productivity is limited only by the degree of development of science and technology and the labor force's ability to assimilate and implement the achievements of science and technology during the particular period. Thus, the second factor for growth of the national income actually is the basic condition for economic development.

Presenting the goals and basic guidelines for the 1981-1985 five-year plan, Comrade Nicolae Ceausescu, in the speech he made at the second congress of workers councils, pointed out: "In order for us to rise to the level of the developed countries and taking into account that in some sectors our productivity is two and even three times less, we must take all measures and must concentrate all forces to achieve a powerful growth in labor productivity during this five-year plan in all branches of the national economy."\* The powerful growth in social labor productivity is the basic condition in the rapid economic development and a basic requirement for our country's move among the countries with an average level of economic development by the end of this five-year plan.

The level and rise in social labor productivity, at the same time, is the basic criterion in evaluating the superiority of one social system over another. Proceeding from this criterion for evaluating social-economic progress, in substantiating the need to increase social labor productivity in this regard, Comrade Nicolae Ceausescu pointed out: "Let us do everything for the rapid rise in labor productivity, being

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\* Nicolae Ceausescu. Speech on Romania's Social-Economic Development in the 1981-1985 Five-Year Plan, Increase in the Role of the Workers Councils and Development of Worker and Socialist Democracy in Our Country," SCINTEIA, 25 June 1981, p 2.

aware that, in the historic competition between socialism and capitalism, socialism must assert its superiority through higher social labor productivity, through broad development of scientific creation, through obtaining higher economic efficiency and through fuller utilization of the masses' initiative and the energy, competence and aptitudes of all those who work."<sup>1</sup> This is since social labor productivity is the most general expression of the opportunities offered society by the use of energy, the competence and aptitudes of the people, by the development and creative demonstration of the human personality in the economic plan.

A backward look at the evolution of the national income and social labor productivity is significant in this regard. Thus, in the 1950-1980 period the national income rose at an average annual rate of 9.38 percent, placing Romania among the states with a rising economy. This rate permitted doubling of the national income in an interval of just 7.7 years. The increase in the national income was determined by the growth in social labor productivity at an average annual rate of 8.78 percent and by the increase in population working in the production sphere at an average annual rate of .50 percent.<sup>2</sup> A simple comparison of the level of the two rates brings out the decisive role of the increase in social labor productivity in our country's economic development. At the same time, the very close rate of the growth rate of social labor productivity to that of national income sheds significant light on the RCP economic policy.

The role which social labor productivity has had in increasing national income comes out even more if we view the figures in Table 1:

Table 1: Rise in National Income and Social Labor Productivity

Indicators	1950- 1955	1955- 1960	1960- 1965	1965- 1970	1970- 1975	1975- 1980
Increase in national income for the interval analyzed in percent	192.00	139.58	154.10	144.71	170.63	142.59
Average annual rate	13.94	6.90	9.03	7.67	11.29	7.35
Increase in social labor productivity:						
for the interval analyzed, in percent	171.97	138.33	154.60	143.16	168.49	140.81
Average annual rate	11.45	6.70	9.10	7.44	11.00	7.08

Source: Calculated from the data of Table 2; "Nicolae Ceausescu," "Speech at the Work of the 2d congress of Workers Councils," SCINTEIA, 25 June 1981, p 2; for 1980 it was supposed that the percentage of population working in the production sphere was 87.7 percent.

We see from the figures in Table 1 that the highest average annual growth rate for the national income was recorded in the first interval of the series of dates. This situation was generally determined by two factors. The first, the reduced level of the 1950 national income, which closes a particularly difficult decade in the modern history of the Romanian people, marked by losses caused by World War II and by the economic disorganization provoked by the bourgeoisie and by the drought. In 1950 the level of the national income still had not reached that of 1938. The second factor, the much more intense attraction of the working population into the production sphere in this interval compared with other intervals studied. If we make an abstraction of

1. Idem.

2. Since population working in production area is not presented separately in "Statistical Yearbook" for the entire period analyzed, I used the method of limiting population to two areas of social activity proposed by C. Sirbu in "Production and Nonproduction Labor," Political Publishers, 1967. Indirect calculations presented in continuation were used for 1980.

the first interval, the fastest rise in national income was recorded in the 1970-1975 period, while the contribution of social labor productivity to the rise in national income was for the first three decades of the socialist order, except for the first interval, more than 97 percent. This reflects the fact that the increase in social labor productivity has continually been in the center of Romania's economic development.

The growth in social labor productivity for the economy as a whole is determined by the growth in social labor productivity in each branch of material production and change in the structure of the labor force by branches in favor of branches with a high level of social labor productivity. Thus, the following made a contribution in the 1950-1979 period to increasing social labor productivity for the economy as a whole:

- a) The growth in social labor productivity in each branch of material production in a proportion of 88.06 percent in the 50's, 85.26 percent in the 60's and 85.15 percent in the first 9 years of the 70's;
- b) Change in the structure of the labor force by branches in favor of the branches with a high level of social labor productivity in the proportion of 11.94 percent in the 50's, 24.76 in the 60's and 24.85 percent in the first 9 years of the 70's.

The evolution of the contribution of the two growth factors for social labor productivity for the economy as a whole brings out the continually increasing contribution of the change in structure of the labor force by branches from one decade to another. Whereas this contribution is minimal in the first decade analyzed due to some reduced changes between industry and the other branches, at the end of the period analyzed these are deep changes: Industry increased its share in working population in the production sphere from 12.83 percent in 1950 to nearly 35 percent in 1979, while agriculture in the same period reduced its share in total working population in the production sphere from 79.6 to 35 percent. As a result of these changes, a trend of bringing closer together the specific weight of the population employed by branches of the production sphere was shown. The coefficient of variation, generally expressing the dispersal of population by branches in proportion to the average, continuously falls from 168.15 in 1950 to 10.80 percent in 1979. All this reflects the quality leap produced in redistributing the population employed by branches in proportion to the objective requirements imposed by the level of development of the production forces.

Social labor productivity by branches generally had bigger growth rates in the branches with the lowest level at the start of the period analyzed. The figures presented in Table 2 are significant in this regard:

Table 2: Level and Rise in Social Labor Productivity (in lei)

Indicators	1950	1955	1960	1965	1970	1975	1980
Social labor productivity from:							
National economy	4,551	7,826	10,826	16,737	23,960	40,317	55,233
Industry	15,605	22,065	29,124	36,475	54,031	69,594	81,544
Construction	11,430	9,458	18,194	19,245	28,714	33,318	51,188
Agriculture	1,589	3,908	5,036	7,735	8,093	15,278	23,304
Transportation and telecommunication	9,091	9,952	13,162	16,804	30,761	41,938	51,383
Other branches	29,651	30,639	26,146	32,512	27,634	55,504	71,687
Savings of labor force through productivity growth in:							
Number of people		6,266	3,367	4,782	3,820	6,140	3,327
Percentage of total		71.6	38.3	54.1	43.1	68.5	36.8

Source: Calculated from "Statistical Yearbook of the SRR 1971," pp 124,125 and "Statistical Yearbook of the SRR 1980," pp 37,38, 91, 112-113



Social labor productivity in industry had an average annual growth rate of 5.87 percent, 3.12 percent lower on average per year compared with that of the national economy as a whole. The effect of this was the reduction in the gap between the two levels of social labor productivity of 2.32 times. Contributing to this reduction in the gap were both the growth in social labor productivity in the other branches as well as the rise in contribution of industry to the production of the national income of 44 percent in 1950 to 58.5 percent in 1979.

Social labor productivity in construction rose at an average annual growth rate of 5.30 percent, 3.65 percent lower on average per year than that of the economy as a whole. Industry increased the gap with construction in the area of social labor productivity in the period analyzed from 1.36 times to 1.59 times. This may be interpreted as a reserve in growth of labor productivity in construction by accentuating the industrialization of this activity. Aiding this idea are also the average annual growth rates in social labor productivity in construction, which varied from an average annual reduction of 8.86 percent to an average annual growth of 13.98 percent. The industrialization of construction has had as an effect a certain trend regularizing the level of social labor productivity.

The social labor productivity in agriculture grew at an average annual rate of 9.70 percent, higher than that for the economy as a whole. As a result of this fact, the gap between the national economy and agriculture in the period analyzed was reduced from 2.86 times to 2.37 times. The most spectacular reduction in the gap was recorded between industry and agriculture--from 9.82 in 1950 to 3.5 times in 1979.

For the intervals studied, variations are found in the average annual growth rates of productivity. In the last 9 years of the 70's, we see a reduction in the differences between the two growth rates. This uniformization trend may be interpreted as reaching a level of agricultural development which would permit a greater contribution to the growth in national income.

The evolution of the social labor productivity by branches indicates clear trends of coming closer together in the level of development of the branches of material production. Measured quantitatively, this trend is made specific in reduction of the relative amplitude in the variation from 616.64 percent in 1950 to 105.44 percent in 1979. Thus, the interval between the minimum and maximum level of social labor productivity by branches was reduced 5.82 times in the period analyzed. What is even more significant is the measuring of this trend with the aid of the coefficient of variation, which was reduced from 141.42 percent to 46.45 percent. In other words, the level of social labor productivity by branches got closer 3 times compared with the average for the economy.

Placing the qualitative aspect in the forefront of development of the production forces in our country in the current decade will be carried out by the powerful growth in social labor productivity. Thus, in conformity with the tasks included in the five-year plan of 1981-1985 and in the documents of the 12th congress, the national income will reach 728 billion lei by 1985 and around 1.058 trillion lei by 1990. If we suppose that the percentage of the population employed in the production sphere will be 86.5 percent by 1985 and 85.5 percent by 1990, in order to reach the level of the national income proposed, average social labor productivity for the economy will have to reach 73,826 lei by 1985 and 103,119 lei by 1990. Proceeding from this figure, we see that social labor productivity will contribute with 82.57 percent to the rise in national income of 1985 and with 91.07 percent to the rise in national income of 1990.



The growth in social labor productivity for the economy as a whole will bring the continuing nearing trend in the level of the branches' development. This trend will be accompanied by significant changes in the social division of labor. In this direction, activities specific to the various branches will be reunited in the same organizational unit to an increasingly greater extent, together with the gradual removal of some of the basic differences between the branches of material production. Industry, through the creation of conditions of mechanization, automation, chemification and electrification of production in the other branches and through the creation of conditions for application of the achievements of the modern scientific-technical revolution on a broader and broader scale in production will contribute to the industrialization of activity in the other branches and will change them to a greater and greater extent into versions of industrial labor.

The rapid and harmonious development of the production forces in Romania has had and will have a favorable effect on the social aspects of production, too. In this regard, conditions have been and will continue to be created for gradually erasing some of the basic differences between the various categories of work, for nearing of the levels of the incomes received, with all of them having as the final effect the trend for homogenization of society's members.

Providing an average annual growth rate of around 6.13 percent in social labor productivity in this decade will continue to maintain the rise of the Romanian economy. Conditions will be created on this base for reducing the work week and day, for improving working conditions, for raising the material and spiritual well being of all the people. At the same time, continuation of the nearing trend in the level of social labor productivity will amplify the process of homogenization of society's members. In the economic regard, the social homogenization will be carried out in the more complete and rational utilization of the potential labor capability of society's members under more and more equitable material conditions for complete achievement of the human personality.

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## ROMANIA

### MINISTER DISCUSSES ROLE OF AGRICULTURE IN ECONOMY

Bucharest VIITORUL SOCIAL in Romanian No 4, Jul-Aug 81 pp 593-601

[Article by Angelo Miculescu, vice prime minister, minister of Agriculture and the Food Industry]

[Text] The evolution of every economy hinges on the related development of industry and agriculture, with these two basic branches playing the decisive role in the elimination of economic backwardness, the rapid growth of the overall economy, the improvement of the people's standard of living, the strengthening of economic independence, the sure advancement along the road of progress and civilization. Proceeding from this overall economic law, from the concept of a multilaterally developed socialist society — formulated by the 10th Congress of the RCP, with the direct input of Nicolae Ceausescu — the Party Program adopted by the 11th Congress and enriched by the 12th Congress, lays down, among the key objectives of the new stage in the history of socialist Romania "the harmonious and proportional development of all the economic branches, the ensuring of a correct balance between industry and agriculture, existing in a close interdependence." "The development of both industry and agriculture, on the basis of the advances in modern industry," the party program points out "is the keystone of successful completion of a multilaterally developed socialist society." [1]

At the Second Congress of leading councils of socialist agricultural units, of all peasantry, of councils of working people in the food industry, forestry and water management, party secretary general Nicolae Ceausescu underlined: "Proceeding from the overall principles of socialism and from the specific realities of our country, the Party program, the 12th Congress have outlined as a central goal the concomitant and forceful development of both industry and specifically of the production of raw materials and energy, and of agricultural — as basic branches of the national economy. In this spirit, the party ensures, simultaneously with the continuous progress of industry, the even greater expansion of the role of agriculture in the balanced growth of the entire economy, in the meeting of the living needs of the people, in the whole process of socialist construction." [2]

To answer these lofty requirements, the party has paid constant attention to the integration of agriculture and of rural settlements into the socioeconomic development of all the country's territory. The socialist transformation of agriculture, the revolutionization of the technical-material base and the ensuring of cadres have created

the conditions for the continuous rise in agricultural output, with direct ramifications in completion of fundamental changes in the social structure of Romanian villages, in the nature of relations of productions in agriculture, in the entire way of life and work of the peasantry. "The complete victory of the socialist agricultural revolution" -- Nicolae Ceausescu pointed out -- "marked the creation of the unified socialist economy, the triumph of the new, socialist relations, in both towns and villages, the final victory of socialism in Romania, in all the sectors of activity." [3]

In the ample process of raising agriculture to the level of the other branches, the party places special emphasis on the expansion of all sectors -- state, cooperative and private farms -- by their broad access to economic and technical advances. In the first stage of the revolution in agriculture a complex process occurred of transition from production mainly based on manual labor, applied in the context of small-scale production, to the use on an overall scale of electrification, mechanization, chemicalization and other major projects undertaken in modernizing production processes within the framework of major farming units, with a high degree of concentration and specialization of production, optimal sizing and location of territorial units (farms, fields, strips, and plots) and of the service facilities ensured (communication ways, irrigation and drainage systems, structures, and so on). The traditional production methods in agriculture were revolutionized and Romania moved to developing a modern agriculture, based on industrial technologies.

The decisive role of agriculture in accelerating the socioeconomic progress of our country stems from the fact that this sector is the branch in which a significant portion of the national income is created and, from this standpoint, it places second, next to industry. On this basis, agriculture ensures for itself the sources of its own development and is instrumental in the formation of the funds needed for the overall progress of our society.

In determining the place and role of agriculture in the country's socioeconomic development, the party proceeded from the fact that Romania has specifically favorable conditions for the obtaining of greater, diversified and efficient plant and animal outputs on which depend, to the highest degree, the continuous upgrading of the material and spiritual well-being of the people, the quality of life. The economic importance of agriculture follows from the fact that it is the main source of products needed for direct consumption and also as raw materials for the food industry and nonfood products for the light industry -- and other industrial sectors. Moreover, the volume and quality of these products must meet the needs of a constantly growing population, with greater incomes and a standard of living that is growing from one stage to another.

Our agricultural output ensures a consumption of more than 3000 calories per inhabitant, with Romania ranking among the first 10 countries in the world for this basic indicator of the standard of living. As the needs for agricultural raw materials for industrialization are continuously growing, it means that the expansion of the food industry and largely of the light industry in this country is contingent upon the progress of agriculture. Furthermore, by participating with the surplus of products in expanding Romanian foreign trade, agriculture is an important source of foreign currency for the economy.

A producer of an immense quantity of biomass, agriculture is increasingly becoming a source of energy which helps to save conventional fuel and thereby is instrumental in meeting to a higher degree, from domestic resources, Romania's needs in this area as well.

Agriculture is involved in the expansion of all nonagricultural branches, of all the areas of activity by the increased demand for means of production and consumer goods, and also for services for the modernization of production and improvement of the standard of living of the rural population. Moreover, agriculture is a great source of manpower, for the development of nonagricultural branches, primarily of industry and construction. The work force in agriculture continues to shrink, from 28% — the level by the end of the prior five-year plan — to 22% by the end of this five-year plan and to 15% in 1990. The objective basis of this process is the greater mechanization and chemicalization of agriculture, concurrently with the expansion of industry, transportation, telecommunications, trade and so forth. The unfolding of this process strongly impacts on economic growth. On the one hand there is an increase in the efficiency of work in agriculture, and on the other hand, labor productivity of newcomers to industry and the other nonagricultural branches is superior to the one they displayed prior to changing their points of production. In this way, greater productivity of all materialized labor is achieved.

The social importance of agricultural progress resides in the fact that this progress generates the overall development of the village, the standard of living of its inhabitants.

To the strong support given by the state, by socialist industry, agriculture equivalently answers by delivering to the state fund greater amounts of farm foodstuffs and nonfood products, with this exchange of goods between workers and peasants constituting the economic basis of the unbreakable alliance between the two friendly classes, the firm mainstay of our socialist system.

Because of the conditions in agriculture in Romania and of its multiple functions, under this five-year plan together with the raw material and energy producing industries, it will be given priority in terms of expansion. In this context, an essential goal of this five-year plan, set by the 12th Congress of the RCP, involves completion of a profound agricultural revolution in terms of production, labor productivity, technical standard, efficiency, and the overall social activity in our villages. The new revolution involves the continuous qualitative transformation of the process of agricultural production, transition of agriculture to the stage of overall mechanization, transformation of farm work into a variant of industrial work in the area of technique, technology and organization of production.

Considering the paramount role of agriculture in the development of our country, formulated was the Plan of development of agriculture and the food industry for the 1981-1985 period as an integral part of the national plan, which incorporates the material and financial resources assigned to this branch and the tasks of boosting plant and animal output, the duties assigned to the state and cooperative sector and to the private farms in ensuring the central fund of farm products for the purpose of increasing agriculture's input into the socioeconomic development of our socialist homeland.



The main condition for the completion of the new agricultural revolution involves continuously solidifying and upgrading the production factors, chiefly by:

- a. Zoning agricultural production for the most cost-effective utilization of the pedoclimatic and socioeconomic conditions;
- b. Replanning and structuring the territory for the purpose of greater efficiency in mechanized performance of farm works, concurrently with greater input of superior categories of use;
- c. Putting to good use all land resources, by expanding land improvement and water management projects and continuously increasing soil fertility by application of natural and chemical fertilizers and also of additions needed for obtaining constantly high outputs in a cost-effective context;
- d. Continuously supplementing and upgrading the system of farm machines and implements, expanding industrial technologies in the area of agricultural plant and livestock production, ensuring, in a more cost-effective context, the projects for serving the production process in agriculture -- supplies, transportation, storage, overhaul, construction, and so forth;
- e. Raising the level of utilization of the energy base, cutting energy and fuel consumption rates, broadly utilizing nonconventional energies -- solar, eolian, geothermal, biogas, and so on -- in the development of the process of agricultural production on farms, specifically on livestock farms;
- f. Considerably increasing the efficiency of the means of production, by raising the farming value of crops and livestock; upgrading the strains and hybrids of plants and breeds of animals; improving and industrializing fodder production;
- g. Expanding research in the area of agricultural sciences and technique for the purpose of increasing production and the efficiency of farming activity;
- h. Streamlining and multilaterally expanding agricultural production for the various zones and wisely intertwining the agricultural branches;
- i. Specializing agricultural production for the various units and integrating these units for the purpose of obtaining finished agricultural products and farm food-stuffs;
- j. Concentrating agricultural production and thus permanently ensuring an economic correlation between the production facilities, the material base and the technologies applied;
- k. Extending the use of the forms for raising efficiency in the organization of agricultural production based on cooperation and association;
- l. Combining agricultural production with industrial production, by achieving mutually advantageous economic cooperation for the development of an agroindustrial activity that permits wise utilization of the technical-material base of agriculture and more efficient integration of agricultural activity with industrial processing;

m. Upgrading the management and organization of production and work by using on an overall scale the overall contract system, application of the principles of worker self-administration and economic-financial self-management, ensuring of self-financing;

n. Creating conditions for the more efficient utilization of the work force, by upgrading skills and eliminating their seasonal character; expanding mass agroindustrial education, thoroughly training highly skilled workers specialized as agricultural mechanics, horticultural mechanics, zootechnological mechanics, hydromeliorator mechanics and other specialized personnel, that could be employed all the year round for a wider range of projects needed in agricultural units.

Industrial farming is more and more closely tied to activities conducted in the other economic branches — machine building and chemical industries, research, and so on — to scientific and technical advances these branches have achieved in areas which serve agriculture. Actually, there is a deepening and multiplication of the relations between agriculture and the other economic branches — formation of agroindustrial economy by the integration of the factors of technical progress in agricultural production and the processing industry, uniform utilization of economic leverages (investment funds, prices, and so forth), upgrading of the forms of organization and management.

The 12th Congress of the RCP decided, for this five-year plan, on a rapid growth of the country's economy, so that by the end of the year 1985 Romania may join the countries characterized by a median economic development. Capitalizing on the benefits of the socialist system and achieving the goals of the five-year plan, agriculture, also, will during this stage take an important step along the path of coming closer to the countries with a highly productive agriculture. To this end, on achieving the five-year plan objectives on expanding and modernizing the technical and material base of agriculture, this sector, by the end of 1985, will count large irrigated areas, protected against erosion, protected against flood and excessive moisture, and so forth. Provision of tractors and farm machinery will be ensured so that the basic operations may be completed during the optimal periods. The livestock will stand at more than 8 million head of cattle, 14-15 million hogs, 20-22 million sheep and more than 60 million fowls.

Significant qualitative steps were taken in terms of unified management of agriculture, development of economic cooperation and association of state and cooperative agricultural units; these programs ensure best possible use of land resources, work force, mechanization, chemicalization and other facilities in agriculture.

In this context, agricultural output will go up, under this five-year plan, versus the prior one — as prescribed by the 12th Congress — 24.5-27.5%, at a median annual rate of 4.5-5%. Underlying this increase will be the grain output, which, in 1985, will stand at 27-28 million tons; significant production rises also are anticipated in horticulture, based on continuation and completion of the projects commenced under the prior five-year plan, and also in terms of industrial crops (sugar beet and sunflower) and textile crops (flax and hemp). The expansion of animal husbandry will ensure the rise in the volume of production of this branch to 45-46% in the total agricultural production based on obtaining of a significant progress in the way of increasing the herds and productivity. Decisive in this area is improvement. Already this year of the fodder base, a fact that involves in every unit the better correlation of the resources planned and, specifically, a higher degree of technicality in obtaining and utilizing fodder.

The essential parameters that characterize the contents of the agricultural revolution, and, respectively, the new quality in agriculture, with a decisive role in terms of the progress of this basic economic branch, involve the significant rise in labor productivity, lower costs and the rise, on this basis, in economic efficiency. As a matter of fact, they involve the only avenues to increasing the national income created in this branch.

The wise use of the land and the other means of production, the introduction and use on an overall scale of the latest techniques in growing crops and raising animals based on the organization of production and work at the highest possible level of discipline — as central features of the premises for the accomplishment of a profound agricultural revolution — are decisively contingent upon the application of the new economic mechanism in all the agricultural units.

In his speech at the Second Congress of All Peasantry, dwelling on the new economic mechanism, Nicolae Ceausescu stated: "In agriculture also, the same as in the entire economy, the introduction of the new economic mechanism signifies, above all, attaining and exceeding the output and profits specified, self-financing, the permanent financial balance of all units." [4].

The new economic-financial mechanism introduces, as basic indicators in assessing the units' activity, net output and physical output and upgrades the indicators and rates of calculation of efficiency. In planning, the emphasis is placed on formulation of the plan from bottom to top — in the context of transmitting to enterprises some orientational and normative planning levels — and on the markedly greater role of economic contracts, both in substantiating the plan provisions and within the framework of supplies and marketing of production. The powers of collective leadership bodies were broadened and these bodies were provided with new economic and financial leverages, that raise the level of worker self-management and solidify economic-financial administration.

In applying the new economic-financial mechanism of great importance are the measures to update and improve the correlation of prices in terms of production, contracting and procurement in agriculture. The current prices for farm products ensure, in the context of obtaining the plant and animal outputs specified for each zone, a corresponding profitability in all units.

We must emphasize that the upgrading of prices specifically involves livestock products and this necessitates firm action to better ensure the fodder base and rigid application of technological standards on upkeep, raising and preservation of health of animals.

Moreover, the obtaining and exceeding of physical output must be coupled with continuous improvement in quality for the purpose of obtaining superior selling prices.

In essence, the increase in production and the reduction of costs to obtain this production further remain the chief avenues to raising profitability and efficiency in all agricultural units.

It is known that in the context of firm prices, the mass of the newly created value — net output — is the resultant of the production obtained for each unit of surface or for each foddered animal and of the expenses made for each unit of production



obtained. Only by creating the new value we can ensure the strengthening of the units' economic power, the rise in the agricultural workers' earnings and the greater involvement of this branch in boosting the national income.

In agriculture, because of the specific of making expenses before obtaining the output and incomes, the permanent maintenance of the financial balance requires, concurrently with wisely managing the material and financial resources, the most substantiated assessment of the status of the crop in the various main vegetation stages, followed by the measures needed to recoup the expenses that became non-cost-effective.

Illustrative in this regard is the manner in which chemical fertilizer is provided and used. The analysis of the crop increase obtained in the last two decades and of the input of fertilization, as one of the paramount production factors, indicates that to obtain the production increase anticipated under this five-year plan the quantity of 220 kg of fertilizer in active substance per arable hectare, vineyards and orchards, prescribed on an average for the 1981-1986 period, has been wisely envisioned. But the complete utilization of this amount requires all workers in agriculture to display greater concern for scientifically substantiating and economically evaluating the use of chemical fertilizer — as an added means in application of organic fertilizer — for the maintenance and growth of the land's production potential, so that the utilization of amounts soundly correlated with the production assignments may ensure maximum efficiency.

Furthermore, an outstanding factor in the application of the new economic-financial mechanism involves mechanization of agriculture, which needs to play a decisive role in maximizing labor productivity and efficiency in all production units in agriculture. The measures to improve the structuring of mechanization, to enhance the responsibility of machine operators in obtaining the outputs planned and cutting the cost of the operations performed mechanically are practically carried out within the framework of mechanization teams, on the farms of the agricultural units where these teams work. Hence, there is the need for the farm heads to manage the teams and tackle jointly, under the overall contract system, the production and economic assignments allotted the farm and the mechanization team under the plans of the economic unit to which they belong.

Greater efficiency of mechanization involves the full use of tractors and farm machinery, reduction of consumption rates of fuel and lubricants per unit of farming project by setting up outfits that make fullest use of the tractor power and simultaneously performing several operations.

In the chief production zones of Romania, in addition to mechanization and chemicalization, appropriate utilization of grounds on which land improvement projects were completed must be among the production factors that contribute to the efficient application of the economic-financial mechanism both by the production increases that are obtained and the costs underlying them.

Besides the sensible use of the material and financial resources of agricultural units, the wise utilization, all the year round, of the work force is another area in which agriculture needs to make evident headway. We need to consistently promote the economic interlocking of the activity for obtaining the farm output with the superior processing and utilization of plant and animal products, with expansion of small-scale industry and services.



The consistent implementation of the principles of self-administration and self-management must be based on the fullest dependence and at the same time agreement between the total mass of the newly created value and the part assigned to each work team, that engages under the overall contract system the obtaining of the production in terms of plant and livestock output or small-scale industry.

Economic-financial self-management actually means managing the activity of production units in such a manner as to ensure the balance between incomes and expenses with a permanent rise in profits, for the purpose of ensuring thus the conditions for repeating the production process on an expanded scale and raising the prospects for greater material incentives for the work force in the units involved.

The upgrading of economic-financial self-management in agriculture is a major goal if we consider the importance of this factor in the national economy, the huge reserves that exist in this branch and need to be put to good use by firm measures. In completing this task an outstanding role is assigned to agroindustrial councils, that must ensure the unified management of agriculture within their jurisdiction and provide the necessary conditions for the adequate application of the new economic-financial mechanism in all units of state and cooperativized agriculture in the zone, in the context of preserving the self-managing power of each component agricultural unit.

The creation of the unified state and cooperative agroindustrial councils, the uniformization of the mechanization activity, the organization of uniform crop rotations, the uniformization of prices in terms of production, contracting and procurement for all the agricultural sectors, the measures aimed at strengthening the unified agroindustrial councils by added managing personnel, at reducing the number of these unified councils, involve the many facets of the activity consistently encouraged by party secretary general Nicolae Ceausescu for the upgrading of the level of economic comprehension and thinking of cadres in handling the major issues in agriculture. The broadly democratic framework established at all managing levels in agriculture must be fully used to examine and resolve all the problems related to the application and upgrading of the new economic-financial mechanism in agriculture.

Being constantly guided by the party Program and the decisions of the 12th Congress of the RCP and of the Second Congress of the Peasantry, working people in agriculture are determined to do everything they can to obtain higher farm outputs in the context of maximum economic efficiency, providing their input into the overall development of Romania, the improvement of the people's standard of living, the supreme goal of the party's entire policy.

#### FOOTNOTES

1. "Programul Partidului Comunist Roman de Faurire a Societatii Socialiste Multilaterale Dezvoltate si Inaintare Spre Comunism" [Program of the Romanian Communist Party for Building a Multilaterally Developed Socialist Society and Advancing Toward Communism], Bucharest, Edit. Politica, 1975, p 66.

2. Nicolae Ceausescu, "Cuvintare la Congresul al II-lea al Consiliilor de Conducere ale Unitatilor Agricole Socialiste, al Intregii Taranimi, al Consiliilor Oamenilor Muncii din Industria Alimentara, Silvicultura si Gospodarirea Apelor" [Speech at the Second Congress of Managing Councils of Socialist Agricultural Units, of All the Peasantry, of Councils of Working People in the Food Industry, Forestry and Water Management], Bucharest, Edit. Politica, 1981, p 9.
3. Nicolae Ceausescu, "Romania pe Drumul Construirii Societatii Socialiste Multilateral Dezvoltate" [Romania Along the Path of Building a Multilaterally Developed Socialist Society], Vol 9, Bucharest, Edit. Politica, 1974, p 894.
4. Nicolae Ceausescu, "Speech at the Second Congress of Managing Councils of Socialist Agricultural Units, of All the Peasantry, of Councils of Working People in the Food Industry, Forestry and Water Management," Bucharest, Edit. Politica, 1981, p 36.

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## YUGOSLAVIA

### YUGOSLAV SHIPBUILDING, SHIPPING, PORTS, FISHING CAPACITY

East Berlin SEEWIRTSCHAFT in German No 7, Jul 81 pp 348-357

[Article by an authors' collective of Wilhelm-Pieck-University, Rostock, and of the Warnemuende/Wustrow Nautical Engineering College: "The Maritime Ecology of the Socialist Federative Republic of Yugoslavia"]

[Excerpt] In 1980, the shipbuilding industry of the SFRY [Socialist Federative Republic of Yugoslavia] (total tonnage: 180,100) was in 17th place among the shipbuilding countries of the world. For the most part, the ships built were exported. The principal customers were shipping companies in Liberia, China, India, Nigeria, Sweden, and in the USSR and the CSSR. While at the beginning of the 1970's the biggest shipyards carried out extensive programs aimed at expanding and modernizing the production installations, above all for the construction of large-capacity vessels, the grave international crisis of capitalist shipping and of the shipbuilding industries in the second half of the 1970's affected the Yugoslav shipyards as well. This development is clearly reflected in the annual ship delivery rates of the Yugoslav shipbuilding industry: In 1970, the tonnage of the ships delivered by the industry totaled 574,000 and Yugoslavia was in 11th place among the shipbuilding countries. In the same year, the first larger vessel, an 85,000-ton ore-oil tanker built at the Pula Uljanik Shipyard, was delivered to Indian buyers.

In 1975, the Yugoslav shipbuilding industry produced 194,000 tons deadweight, thus ranking 12th among the shipbuilding countries of the world. The industry produced several ships exceeding 200,000 tons, including a 277,000-ton tanker which likewise was built by the Uljanik Shipyard for Indian buyers.

During the period from 1971 to 1975, the growth rate of Yugoslavia's industrial production averaged 6.4 percent, while shipbuilding expanded at a rate of 14.2 percent. In 1980, the output of the Yugoslav shipyards dropped to the lowest level in 20 years. In 1979, the industry still managed to deliver 18 ships (total: 340,900 tons deadweight). One of the main causes of the decline in tonnage is the termination of production of large-capacity tankers.

In the 1970's, the Yugoslav shipbuilding industry was very much export-oriented. At times, production for exports accounted for over 90 percent of total output. In 1978, exports amounted to 8.2 billion dinars, i.e. 10 percent of the SFRY's total exports. For a long time, the Yugoslav shipbuilding industry has been an important source of foreign currency for the state budget. Since the end of World War II,

Yugoslavia's shipyards have produced approximately 6.5 million gross register tons. Of this total, only 1.5 million gross register tons were delivered to Yugoslav shipping companies. During the period from 1968 to 1976, the developing countries were the principal customers of Yugoslavia's shipbuilding industry; these countries accounted for 50.3 percent, i.e. the equivalent of a shipbuilding output of 3.8 million tons deadweight, while the capitalist industrialized countries accounted for 38.0 percent (2.9 million tons deadweight), and the CEMA countries, for 9.2 percent (694,546 tons deadweight). According to the latest data concerning unfilled orders, the share of Yugoslav shipping companies is increasing due to the government's interest in attaining full utilization of the national shipbuilding capacities. Judging by the orders in hand in 1980, 22 percent were placed by Yugoslav shipping companies, and approximately 78 percent, by foreign customers. Thus, according to Yugoslav estimates, in 1980 the rate of underutilization of the state's shipbuilding capacities amounted to 47 percent. Since then, the situation has been steadily improving and for the period from 1981 to 1985, the Yugoslav Government again has published optimistic forecasts predicting satisfactory capacity utilization, at least from 1982 on. Yugoslavia's shipbuilding industry intends to draw to a greater extent on the domestic machine building industry, which in 1980 supplied approximately 75 percent of the machines and equipment needed by the shipbuilding industry. A few years ago, imports still accounted for up to 40 to 50 percent of component products. Assuming that foreign orders will maintain their upward trend, the Yugoslav shipbuilding industry expects the 1982 export volume to reach approximately \$610 million. For the period from 1981 to 1985, the order volume is estimated at 160 to 170 ships; some of these orders have already been placed. At present, the Soviet Union is the principal customer of Yugoslavia's shipbuilding industry. The long-term program for cooperation between the USSR and the SFRY, which was concluded in Belgrade in September 1980, gives priority to cooperative shipbuilding on the basis of specialization and collaboration: The SFRY will supply above all passenger-carrying freighters, ferries capable of transporting 100 to 120 railroad cars, floating drilling rigs and specialized ships for servicing these rigs. In return, Yugoslavia will obtain from the Soviet Union dry-cargo freighters (13,500 tons deadweight), fishing vessels (class "Baltik"), ocean-going tugs, and dry docks (4,500 and 8,500 tons deadweight). There are other customers, e.g. China, Sudan, the CSSR, India, and Yugoslav shipping companies.

At the beginning of the 1970's, the Yugoslav shipbuilding industry began to attract attention owing to the expansions and the creation of installations for building large-capacity vessels. In the construction of large-capacity tankers, the dimensions reached a maximum of 400,000 tons deadweight. Due to the recession and the rapid decline in new orders, a number of shipyards radically changed their production programs; they were forced to take orders of steel construction rigs and equipment for the chemical, mining and metalworking industries. At present, however, the shipbuilding sector is showing renewed strength. In the 3rd quarter of 1980, the Yugoslav shipbuilding industry received orders for 58 ships, totaling 965,660 gross register tons (total capacity of the shipyards: approximately 600,000 gross register tons per year). Yugoslavia thus has overtaken traditional capitalist shipbuilding countries such as Great Britain, Sweden, the FRG and Norway. Among the socialist countries, the SFRY ranks third, after the USSR and Poland.

Yugoslavia's largest shipyards belong to the "Jadranbrod" Enterprise Association, the representative and coordinating organ of Yugoslav shipyards. The association



safeguards the shipyards' interests in regard to developmental policy, production programs, procurement and marketing policy, information and documentation and other key tasks. The association comprises the following shipyards and enterprises:

- "Viktor Lenac" Shipyard, Rijeka
- "3. Maj" Shipyard and Diesel Engine Works, Rijeka
- "Jozo Lozovina-Mosor" Shipyard, Trogir
- Split Shipyard and Diesel Engine Works, Split
- "Tito" Shipyard, Kraljevica
- "Uljanik" Shipyard and Diesel Engine Works, Pula
- "Tito" Shipyard, Belgrade
- Novi Sad Shipyard, Novi Sad
- Becej Shipyard, Zrenjanin
- Dunav Shipyard, Bezdán
- Tisa Shipyard, Novi Becej
- "Veljko Vlahovic" Shipyard, Brijela
- "2. Oktober" Shipyard, Izola
- Split Ship-Repair Yard, Vranjje
- Greben Shipyard, Vela Luka
- Brodotehnika Machine Building Enterprise, Belgrade
- "Jugoturbina" Motor Works, Karlovac

The following list details the production capacities, main product lines, and order volume of Yugoslavia's principal shipyards (as of January 1981):

#### "3. Maj" Shipyard, Rijeka

- Annual capacity approximately 400,000 tons deadweight
- 3 slipways (maximum 12,500 tons deadweight, length: 260 meters)
- Licensed production of Sulz RD and RND engines (annual capacity approximately 145,000 kw)
- Orders:

Mixed-cargo freighter	15,400 tons deadweight
Bulk-carriers	5,000 tons deadweight
	70,000 tons deadweight
Tanker	40,000 tons deadweight

#### "Jozo Lozovina-Mosor" Shipyard, Trogir

- Annual capacity 70,000 tons deadweight
- 3 slipways (maximum 40,000 tons deadweight)
- Repair docks, 25,000 tons and 40,000 tons
- Orders: Tanker 33,800 tons deadweight

#### Split Shipyard

- Annual capacity 630,000 tons deadweight
- 4 slipways (maximum 250,000 tons deadweight)
- Licensed production of MAN engines (3,000 to 27,000 kw) and MacGregor hatch covers
- Orders:

Mixed-cargo freighter	16,000 tons deadweight
Refrigerator ship	9,400 tons deadweight

Bulk-carrier	5,000 tons deadweight
Tanker	39,600 tons deadweight

**"Tito" Shipyard, Kraljevica**

- 3 slipways (maximum 5,000 tons deadweight; length: 120 meters)
- 1 floating dock, 1,500 tons
- Orders: Ro/Ro ship 3,700 tons deadweight

**"Uljanik" Shipyard, Pula**

- Annual capacity approximately 675,000 tons deadweight
- 3 slipways (maximum 400,000 tons deadweight; length: 175 meters); slipways amenable to combination occupancy
- 2 dry docks (130 meters) for repairs
- Licensed production of Burmeister and Wain engines (2,100 to 32,000 kw); annual capacity: approximately 110,000 kw
- Orders:
 

Mixed-cargo freighter	15,700 tons deadweight
Multi-purpose freighters	17,000 tons deadweight
	24,500 tons deadweight
Bulk-carrier	5,000 tons deadweight
Tanker	39,600 tons deadweight

**"Viktor Lenac" Ship-repair Yard, Rijeka**

- 3 docks (6,000, 12,000 and 24,000 tons; 201.5 x 33.8 meters)
- Licensed production of Fiat engines

**"Jugoturbina" Diesel Engine Works, Karlovac**

- Licensed production of Sulz RD, AL and ZV engines; annual capacity: approximately 45,000 kw

The technological structure of the main shipyards of Yugoslavia's shipbuilding industry conforms with the requirements of a modern, economical production process. In the 1970's, key sectors of the Pula, Split and Rijeka shipyards were reorganized without interruption of the production process. Roofed preassembly halls, mechanized and automated section-production lines, ultra-modern oxy-acetylene cutting and welding setups, increased hoisting capacities, and efficient steel sheet descaling and preserving installations today can be found in most of the country's shipyards. The large-capacity shipyards are distinguished by the complex production of equipment (e.g. winches, hatch covers, compressors and diesel engines). For the most part, the ships' equipment is produced under license or imported. However, in the course of expansion of Yugoslavia's shipbuilding capacities, the share of domestically produced equipment has been increasing continuously. This goes also for the production of steel plate.

The cooperation of Yugoslavia's shipbuilding industry with the CEMA countries is based on an agreement concluded between the SFRY and CEMA. Thus it is not only in regard to the determination of the main trends in the international development of various ship models and in regard to a number of development projects requiring

Table 1. The Development of Yugoslavia's Merchant Fleet, 1960-1980<sup>1</sup> (note: the balance obtaining upon deduction of the number of tankers from the merchant fleet total represents the dry-cargo freighters)

Jahr	1) Handelsflotte gesamt			2) darunter Tanker			3) Entwicklung (%)	
	An- zahl 5)	Schiffgröße 6)		An- zahl	Schiffgröße		gesamt Flotte 8)	darunter Tanker 9)
		RKT 7)	t dw		RKT	t dw		
1960	165	585 678	882 914	8	51 335	77 188	100	100
1965	242	993 463	1 459 136	18	74 968	110 904	167	148
1970	245	1 481 603	2 122 500	23	238 061	388 630	250	405
1975	286	1 771 678	2 617 169	34	234 964	380 305	298	438
1976	282	1 882 664	2 755 765	34	234 679	380 305	313	438
1977	288	1 856 081	2 927 762	34	213 065	361 240	328	415
1978	300	2 180 477	3 288 008	25	213 654	362 854	346	416
1979	309	2 327 896	3 561 698	25	213 654	362 854	391	416
1980	312	2 570 000	3 633 731	25	213 654	362 854	398	416
1981	319	2 620 427	3 718 042	24	211 880	365 567	406	413

<sup>10)</sup> Stand jeweils am 1. Januar des Jahres, Einheiten über 300 RKT (Zusammensetz-  
ung nach Angaben des Institutes für Seeverkehrswirtschaft, Bremen)

#### Key:

1. Merchant fleet, total
2. No. of tankers in the fleet
3. Expansion (%)
4. Year
5. Number
6. Size of ship
7. Gross register tons
8. Fleet as a whole
9. Tankers in the fleet
10. As of 1 January of the respective year; ships exceeding 300 gross register tons (compiled on the basis of data supplied by the Bremen Institute for Maritime Shipping)

multipartite consideration that the Yugoslav shipbuilding industry closely collaborates with the other countries belonging to Section No 4 (Shipbuilding) of CEMA's Permanent Commission for Machine Building; it also participates in the development of specialized ships. Thanks to its capacities and installations, the Yugoslav shipbuilding industry is capable of building almost all types of modern, specialized, sea-going dry- and liquid-cargo freighters and of trawlers and tenders for the fishing fleet.

The scientific-technological development of Yugoslavia's shipbuilding industry—both in regard to the end product and in regard to the construction technologies and processes—is proceeding on a high level. The systematic support by the state, the continuous exchange of experience with leading shipyards, the extensive licensing policy and the establishment of domestic scientific training and development facilities (e.g. the Zagreb Institute for Hydrodynamics) have made Yugoslavia a competitive European shipbuilding country. Side by side with the energy sector and with the efficient machine building, electrical engineering, construction and nonferrous metal industries, the shipbuilding industry has developed into a leading branch of the country's economy.

#### The Merchant Fleet

Along with the development of the shipbuilding industry, there proceeded the expansion of the SFRY's merchant fleet. In 1950, the fleet totaled a mere 223,000 gross register tons; by 1970, it had expanded to 1.516 million gross register tons, and

# Focal Points of the SFRY's Maritime Economy and Industry--Key Transit Routes



## Key:

- |                                       |  |
|---------------------------------------|--|
| 1. Shipyards                          | 8. Main highways   |
| 2. Fishing ports                      | 9. Canals  |
| 3. Maritime trading ports             | 10. Oil pipeline   |
| 4. Freight turnover 1 million tons    | 11. Oil pipeline (planned/under constr.)   |
| 5. Freight turnover 5-10 million tons | 12. State border   |
| 6. Freight turnover 10-15 mill. tons  | 13. Borders of the state republics   |
| 7. Key railroad lines                 | 14. 1-Slovenia; 2-Croatia; 3-Bosnia and Herzegovina; 4-Serbia; 5-Montenegro; 6-Macedonia |
|                                       | 15. Rivers   |



on 1 January 1981, it totaled 2.421 million gross register tons or 3.718 million tons deadweight, thus ranking 22nd among 140 countries. At this time, the fleet was made up of 294 dry-cargo freighters (total tonnage: 2.217 million gross register tons or 3.364 million tons deadweight) and 24 tankers (total tonnage: 0.366 million tons deadweight). The tankers constitute approximately 10 percent of Yugoslavia's merchant fleet and almost all of them are operated by the Zadar "Jugoslavenska Tankerska Plovidba" Shipping Company. This company also operates 10 of the technologically most advanced bulk-carriers of the Yugoslav fleet. In the last 20 years, the merchant fleet has been continuously expanded; from 1960 to 1980, total tonnage multiplied. In the last 10 years, the size of the merchant fleet has remained practically unchanged.

However, the expansion of the SFRY's merchant fleet did not proceed without difficulties. Aside from internal problems concerning financing and credit, the Yugoslav fleet was affected by the protracted capitalist shipping crisis: It proved impossible to attain the target of 3.2 million gross register tons set for 1980 by the state's development plans. The crisis also affected numerous shipping companies. Thus it was only after 6 crisis years, since April 1979, that the Slovenian shipping companies have again registered increased demand for trips and freight transport.

Tables 2 to 5 show the ships of the most important shipping companies, including vessels of less [sic!] than 100 gross register tons. The core of Yugoslavia's merchant fleet is made up of the ships of 13 shipping companies. For two-thirds of the total tonnage, the ports of registry are located in Croatia.

Conventional mixed-cargo freighters constitute approximately 50 percent of the merchant fleet, while bulk-carriers account for approximately one-third. As regards the number of ships, passenger ships and ferries constitute a significant share, whereas in terms of total tonnage they account for a mere 2.8 percent. For the most part, these relatively small passenger ships and ferries are employed for transport along the Adriatic coast and for trips to the numerous islands. In 1980, 13 new ferries were introduced, which are capable of transporting 250 to 450 passengers and up to 45 passenger cars. Ships capable of accommodating modern transport and transshipment technologies do not account for a large percentage in these statistics. In the category ranging from 4,000 to 9,999 gross register tons--the biggest category (26 ships) which accounts for approximately 40 percent of the Yugoslav merchant fleet--the conventional mixed-cargo freighters are the predominant type of vessel. The two categories exceeding 10,000 gross register tons constitute approximately 50 percent of the fleet; in addition to tankers and bulk-carriers, they also comprise mixed-cargo freighters. Nearly two-thirds of the merchant fleet are older than 10 years. Approximately one-fourth of the total tonnage consists of ships that are between 10 and 15 years old, and over 100 ships are up to 20 years old. As the size of the ships increases, their age decreases--a consequence of the fact that the bulk-carriers in particular are relatively new.

Generally speaking, it is quite evident that the Yugoslav merchant fleet and the shipping companies must undertake extensive modernization and renovation investments to improve the performance of the fleet. On the one hand, it is necessary to carry out the increasing sea-transport tasks; on the other hand, the state wants to increase the share of export goods transported by Yugoslav ships. In the last 2 years, the individual shipping companies have been intensifying their efforts toward modernization and renovation of their transport fleets. During this period,

Table 2. Yugoslavia's Most Important Shipping Companies (ships exceeding 100 GRT; as of mid-1979)

Reederei 1)	2) Anzahl der Schiffe	Vermessung der Schiffe 3)	Durchschnittsalter 4) (Jahre)
Atlantika Plovidba, Dubrovnik	27	265 397	13
Croat Sana Shipping Corp. Rijeka	4	37 648	10
Jadranska Brodogradnja Plovidba, Split	22	174 447	13
Jadranska Linijaska Plovidba, Split	48	40 343	18
Jugoslavenska Linijaska Plovidba, Rijeka	89	484 734	15
Jugoslavenska Tankerska Plovidba, Zadar	34	885 770	14
Jugoslavenska Oceanska Plovidba, Kotor	21	885 845	13
Lomaska Plovidba, Rijeka	32	54 343	26
Mediterranska Plovidba, Korcula	15	24 368	25
Ostarna Plovidba, Split	15	135 19	23
Prekoceanska Plovidba, Bar	14	136 283	18
Subotica Plovidba, Sibenik	13	81 917	15
Spisana Plovidba, Plovan	27	287 029	12
<b>Insgesamt 5)</b>	<b>343</b>	<b>2 375 830</b>	

Key:

1. Shipping company
2. Number of ships
3. Tonnage

4. Average age (years)

5. Total

Table 3. Structure of Yugoslavia's Merchant Fleet (ships over 100 GRT; as of mid-79)

Schiffstyp 1)	2) Anzahl der Schiffe	Vermessung (GRT) 3)	Durchschnittsalter 4) (in GRT/Schiff)	Anteil an der Flotte (%) 5)
Mischgütfreighter 6)	200	1 183 907	5 712	50,3
Bulkcarrier 7)	45	651 686	17 377	25,9
Containerverfrachter 8)	3	80 980	6 742	0,4
Ro/Ro-Schiffe 9)	5	10 167	2 033	0,4
Passagierschiffe 10)	1	49	48 981	2,8
Fähren 11)	49	68 981	1 332	2,8
Tanker 12)	28	214 013	7 643	8,0
Eisfrachter 13)	3	18 821	6 307	0,8
Spezialfrachter 14)	1	810	—	—
<b>Insgesamt 15)</b>	<b>343</b>	<b>2 375 830</b>	<b>4 927</b>	<b>100,0</b>

Key:

1. Type of ship
2. Number of ships
3. Tonnage (GRT)
4. Average tonnage (GRT/ship)
5. Share of total fleet (%)
6. Mixed-cargo freighter
7. Bulk-carrier
8. Container-carrier

9. Ro/Ro ship
10. Passenger ship
11. Ferry
12. Tanker
13. Ore freighter
14. Specialized freighter
15. Total

Table 4. Tonnage Categories of Yugoslavia's Merchant Fleet (ships over 100 GRT; as of mid-1979)

Größengruppe 1)	Anzahl der Schiffe 2)	Vermessung (GRT) 3)	Durch- schnitts- alter (Jahre) 4)	Anteil an der Flotte (%) 5)
100 bis 299 6)	21	4514	26	0,2
300 bis 499	45	18145	29	0,7
500 bis 999	22	19063	35	0,8
1000 bis 2999	66	151790	39	4,4
3000 bis 9999	126	1489527	15	42,3
10000 bis 19999	45	620361	8	20,5
20000 bis 49999	18	550571	9	23,2
Insgesamt 7)	343	2275090		100,0

Key:

- |                        |                                 |
|------------------------|---------------------------------|
| 1. Tonnage category    | 5. Share of the total fleet (%) |
| 2. Number of ships     | 6. 100 to 299                   |
| 3. Tonnage (GRT)       | 7. Total                        |
| 4. Average age (years) |                                 |

Table 5. Age Structure of Yugoslavia's Merchant Fleet (ships over 100 GRT; as of mid-1979)

Altersgruppen (Jahre) 1)	Anzahl der Schiffe 2)	Vermessung (GRT) 3)	Durchschnitts- größe der Schiffe (GRT/Schiff) 4)	Anteil an der Flotte (%) 5)
bis 2	21	389743	15708	13,9
3 bis 4	7	101808	14558	4,5
5 bis 9	34	498512	11848	17,9
10 bis 14	88	790570	9049	33,5
15 bis 19	75	384194	5121	16,2
20 bis 24	57	226506	3971	9,5
25 bis 29	40	82926	2073	3,5
über 29	19	27853	1466	1,2
Insgesamt 6)	343	2275090	6927	100,0

Key:

- |                       |                               |
|-----------------------|-------------------------------|
| 1. Age groups (years) | 4. Average tonnage (GRT/ship) |
| 2. Number of ships    | 5. Share of the total fleet   |
| 3. Tonnage (GRT)      | 6. Total                      |

a number of shipping companies—"Jadranska Slobodna Plovidba," Split; "Jugoslavenska Linijska Plovidba," Rijeka; "Losinjska Plovidba," Rijeka; and "Splosna Plovba," Piran—have put into service a greater number of container-carriers and Ro/Ro ships. These ships are used primarily for transport service to North Africa, the Mediterranean, the Red Sea, and on other global routes. The Yugoslav shipping companies' activities for the domestic economy and in the cross-trade (involving the developing countries in particular) are based on the Law Concerning Sea and Inland Navigation—a kind of navigational code—which was passed by the parliament in 1977; the 1,046 articles of this law regulate the material-legal questions concerning ships, the contractual and other obligations, the basic navigational safety measures and the procedures concerning the ships' registration and limited liability.

The modernization and renovation projects of the shipping companies are part of the developmental plan for the Yugoslav merchant fleet and the work on them will be continued during the period from 1981 to 1985. Above all, these projects are to help reduce the transport costs for the maritime export trade and at the same time consolidate the valuta payments balance. Thus the development plan for the Yugoslav merchant fleet for the period from 1981 to 1985 calls for construction of modern ships and for elimination of obsolete ships and of ships that do not meet the international standard. The ships to be built are to meet above all the requirements of Yugoslavia's foreign trade. These investments are intended better to adapt the maritime traffic to an integrated, container-based transport system.

Along with the development of the merchant fleet, a broad system of research and training facilities has been set up. In this connection, one should mention the Zagreb Nautical Institute, the Institute for Maritime and Submarine Medicine and the Split Institute for Oceanography. Merchant marine schools can be found in a number of cities—in Piran, Rijeka, Mali, Sotin, Split, Dubrovnik and Kotor. The nautical academies in Piran, Rijeka, Split, Dubrovnik and Kotor pride themselves on their long tradition. These academies train personnel not only for the Yugoslav merchant fleet, but also for other fleets, above all the fleets of the developing countries; the Rijeka Merchant Marine College (now Nautical Academy), for example, trained 150 Sudanese sailors, employees of the "Sudan Shipping Line." This shipping company had been established as a joint Sudanese-Yugoslav enterprise and has now passed completely into Sudanese hands. In Rijeka, there has been established a center specializing in the career counseling and training of sailors.

## Seaports

On its long coast—which in regard to the establishment and location of ports calls for highly differentiated assessment—Yugoslavia has for a long time had at its disposal a large number of—mostly small—seaports. The—primarily regional—significance of these ports derives for the most part from the fact that in the past the transport infrastructure was insufficiently developed. Whereas the rugged coast—which in some parts is deeply cleft and given natural protection by offshore islands and which is distinguished by a steep submarine slope—offers favorable conditions for the construction of ports, the hinterland with its steep coastal range presents considerable difficulties in regard to the development of a transport route network. Consequently, the ports that have assumed increasing importance in the last few years have been those that had serviceable rearward transportation links.



The state directed special attention to the transport links between the seaports and the main industrial centers of the country. In this respect, the railroad plays an important role. Whereas Rijeka is connected with Ljubljana and Zagreb and thus with the Belgrade area, Ploce and Mostar have been linked with Sarajevo and with the industrial and agricultural areas of the riverine plains in the north. In 1977, the Belgrade-Bar railroad line, which is of great economic importance, was put into service. The transit functions these ports perform for countries such as Austria, Hungary, the CSSR, Poland and Romania are increasing.

The most important port of the SFRY is Rijeka, which accounts for approximately 50 percent of the total freight turnover (Table 6). There are other ports of supraregional importance: Bar, Koper, Ploce, Split and the new petroleum port of Omisalj, all of which handle over 1 million tons per year. Aside from a number of older mixed-cargo transshipment installations in the Rijeka and Susak harbor basins (depth: 10 meters), Rijeka has in the Bakar harbor basin a modern bulk-cargo terminal for processing ore tankers up to 100,000 tons deadweight and two berths for 70,000 ton tankers. Container transshipment presently is concentrated in the Brajdica Terminal, which handles approximately 140,000 tons of containerized freight by means of the Lo/Lo or the Ro/Ro process. In Bakar Bay, an area extending over 30 hectares is being prepared for service as a container center. It is expected that in the 1980's Ro/Ro transshipment in this center will total 350 kilotons, while Lo/Lo transshipment is expected to reach 300 kilotons per year. This development is connected with the laying of a second track on the Rijeka-Zagreb railroad line; this project is to be completed by 1985.

Table 6. Development of Freight Turnover in Yugoslavia's Key Seaports, 1973-1977

Hafen 1)	Containerumschlag (tst) 2)		Tonnage	Jährliche Wachstums- rate 3)
	1973	1977		
Bar	808	1145	187	4.15
Koper	1881	1908	108	0.50
Ploce	2452	2971	121	4.88
Rijeka	10482	14125	120	7.79
Split	2040	2484	121	4.88
Zusammen 4)	20963	26133	120	5.74

Key:

- |                   |                       |
|-------------------|-----------------------|
| 1. Port           | 3. Annual growth rate |
| 2. Total turnover | 4. Total              |

Another general-purpose port is the Port of Koper (wharf-length: approximately 1,000 meters; depth: 12 meters). In this port, too, the investment activity is focused on container transshipment; a short time ago, a new terminal (wharf-length: 500 meters) was put into service here. In the first--previously operative--section, approximately 40,000 TEU were turned over in 1979; the terminal is equipped with a portainer (carrying capacity: 45 tons) and it also has a tanker berth (depth: 16 meters). Two bulk-cargo berths--intended primarily for the processing of small grain-carriers--are under construction.

The Port of Bar has been expanding rapidly in the last few years; this port is of great importance in regard to transit trade--above all trade with Hungary and Romania. This rapid development is closely related with the--recently completed--

construction of the Bar-Belgrade railroad line. Aside from transshipment of containers and bulk-cargo, the port focuses on the handling of tankers carrying chemicals and produce. Ships with a draft of up to 14 meters can dock here. Modern bulk-cargo loading bridges can load or unload 10,000-ton freighters within 8 hours. The port is equipped for an annual turnover of 5 million tons; at present, it handles a little over 1 million tons of goods.

Another promising port is the above-mentioned petroleum-port of Omisalj on the Island of Krk near Rijeka. From this port, pipelines run to Yugoslavia's refineries, to Hungary and to the CSSR. The present capacity of the oil pipeline from the port to the processor totals 24 million tons per year; it can be increased to 34 million tons. The Omisalj wharves are equipped for the simultaneous unloading of several 350,000-ton tankers.

### The Fishing Industry

Compared with the production potential of the country's long and variegated coastal zones, Yugoslavia's deep-sea fishing industry is underdeveloped. The well-developed coastal fishery, part of which draws on old equipment, gives Yugoslavia no more than a 10-percent share of the fishery in the Adriatic.

In 1978, the total catch in the Mediterranean amounted to 37,465 tons, thus exceeding by 40 percent the level recorded at the beginning of the decade. In the Mediterranean, sprat fishery predominates. In the last decade, sprats accounted for 50 to 60 percent of the total catch (Table 7). As regards inland fishing, carps account for over 85 percent of the total catch.

Table 7. Fish Netted by Yugoslavia's Fishing Fleet

Year 1)	Catch in tons 2)	Inland 3)		Mediterranean	
		including carps (1) 4)	including carps (1) 5)	including carps (1) 6)	including carps (1) 7)
1970	40,000	19,200	—	20,700	—
1971	40,000	19,200	11,700	20,800	—
1972	40,000	19,200	—	20,800	—
1973	51,000	20,200	13,000	30,800	—
1974	54,234	23,000	14,750	30,819	—
1975	50,000	24,000	14,100	25,900	19,500
1976	58,425	25,000	14,000	34,000	21,250
1977	60,000	25,000	14,000	35,000	22,700
1978	62,000	25,200	15,000	37,000	22,500

Key:

- |                   |                        |
|-------------------|------------------------|
| 1. Year           | 5. Including: Carp     |
| 2. Total catch    | 6. Mediterranean       |
| 3. Including:     | 7. Including: Sardines |
| 4. Inland fishing |                        |

The deep-sea fishing fleet has at its disposal only a few large, modern fishing vessels of over 100 gross register tons (Table 8). In 1978, the fleet used approximately 200 smaller fishing vessels and 8,000 motor-driven fishing boats, but also approximately 1,500 motorless boats (1971: as many as 2,318 boats of this type). As for the inland fishing industry, pond-based fish-hatching was expanded from 22,857 hectares in 1973 to 26,517 hectares in 1977.

Table 8. Fishing Vessels of Over 100 Gross Register Tons

<u>Size of Ship</u>	<u>Quantity</u>	<u>GRT</u>
100 to 499 gross register tons	3	424
1000 to 1999 gross register tons	2	2094
Transport- and processing-ship	1	113

According to a fishery-promotion program designed to increase fish consumption in Yugoslavia (at present approximately 3.5 kilograms per capita), to improve capacity utilization in the fish-processing industry and to expand exports, the total catch is to be increased to 91,800 tons by 1983. Of this total, the fishing fleet in the Adriatic is to provide a share of 50,000 tons. There are other projects that could yield a total catch of 150,000 tons. According to an agreement concluded by a number of fishing enterprises, 100 new ships (total price: 2 billion dinars) will be acquired to this end; at least 75 percent of these vessels are to be built by Yugoslav shipyards. Implementation of this project is absolutely essential for attaining these objectives, for in 1979 Yugoslavia's total catch (56,470 tons) did not exceed that of 1975.

The principal product of the fish-processing industry is canned fish (Table 9), a large share of which is exported (1977: 43 percent). Moreover, the product group "canned fish" determines the export structure of fish products, for in terms of quantity canned fish accounts for approximately 70 percent of exports. As regards fish-product imports, during the period from 1970 to 1978 fish meal accounted for over 70 percent. Whereas the fish meal imports necessitated expenditures of \$40.6 million, the canned-fish exports yielded only \$16.7 million.

Table 9. Output of Canned Fish (in 1,000 t)

<u>1947</u>	<u>1957</u>	<u>1967</u>	<u>1971</u>	<u>1975</u>	<u>1977</u>
2.7	11	18	24	31	30

The unfavorable fish-product import/export ratio likewise underscores the necessity to increase the country's total catch. On the import side, the price of a ton of fish or fish meal increased 250 to 255 percent during the period from 1970 to 1978, whereas the average price per ton of fish exports showed only a 182-percent increase, and the price of the principal export product—canned fish—a 155- to 160-percent increase. Table 10 provides a differentiated survey of imports and exports of fish products.

As is typical of states distinguished by well-developed coastal fishing, Yugoslavia has a great many smaller fishing bases. Fishing ports can be found—among other places—in Rijeka, Pula, Dubrovnik, Poweczu, Zadora and Rovinju.

Table 10. Imports and Exports of Fish Products

Import				Export			
Gesamt 1)		darunter Fischmehl 2)		Gesamt 3)		darunter 4) Konserven und Präserven	
in t	in 1000 US-\$	in t	in 1000 US-\$	in t	in 1000 US-\$	in t	in 1000 US-\$
1970	143200	31132	119000	23263	12000	8832	9400
1971	92600	22028	70500	14198	10900	8275	9200
1972	76300	18230	58000	10336	13200	10125	10800
1973	96700	45400	67400	34333	14300	12186	12500
1974	120300	62081	83100	44064	14000	15038	12400
1975	79700	27692	53000	16164	14000	12517	10600
1976	90877	35043	62944	22021	23000	23048	16114
1977	109891	55109	80922	38347	18194	21051	13025
1978	116257	63521	82059	40608	20993	26919	14499

Key:

1. Total

2. Including: Fish meal

3. Total

4. Including: Canned fish

8760

CSO: 2300/319

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